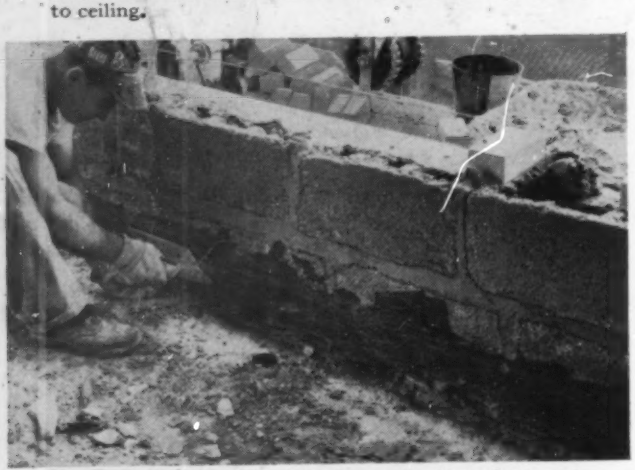
# ARCHITECTURAL RECORD

STORES

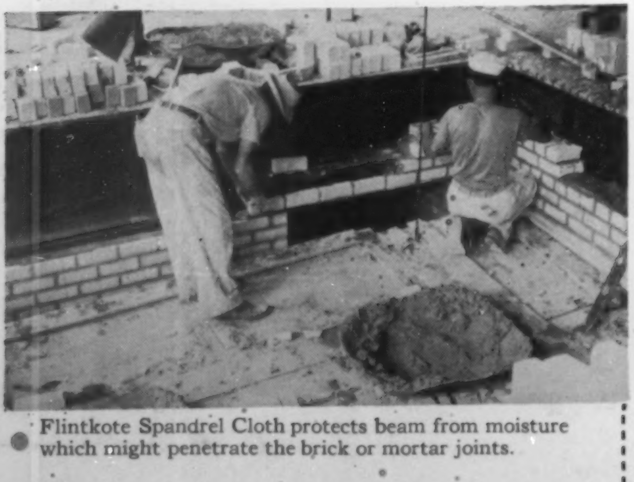
APRIL 1948

# Keep Moisture at Bay... the Flintkote Way

Flintkote Mastic being applied to the inside surface of cinder-concrete masonry wall. Wall is coated from floor to ceiling.



Mastic being applied to inside wall along floor and above spandrel beam. Projecting spandrel cloth is then bent up into mastic, and more material is spread over it.



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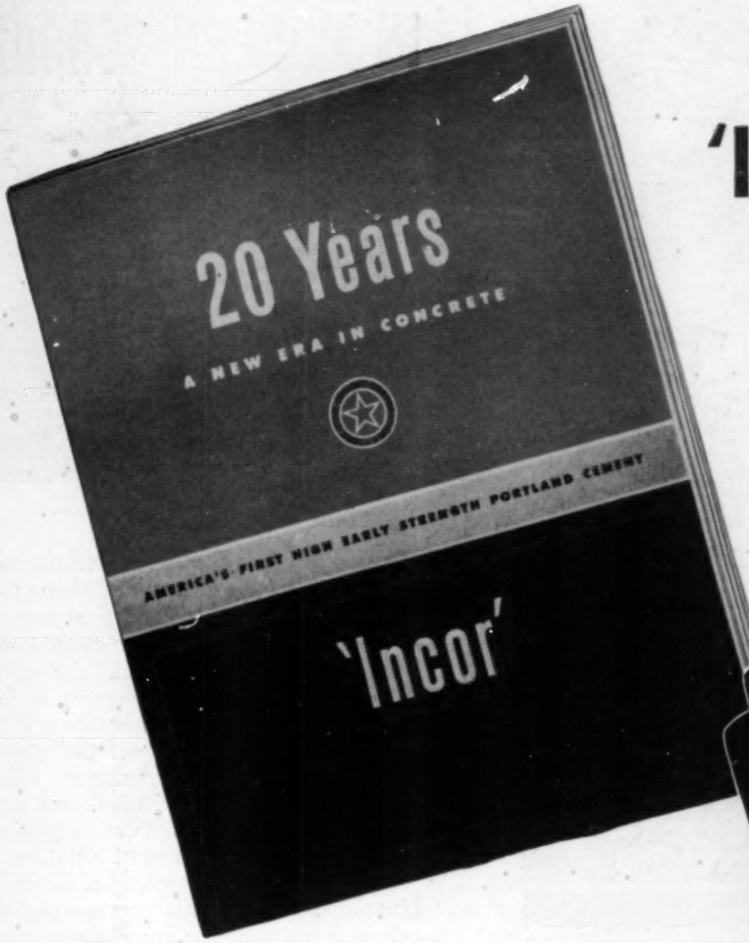

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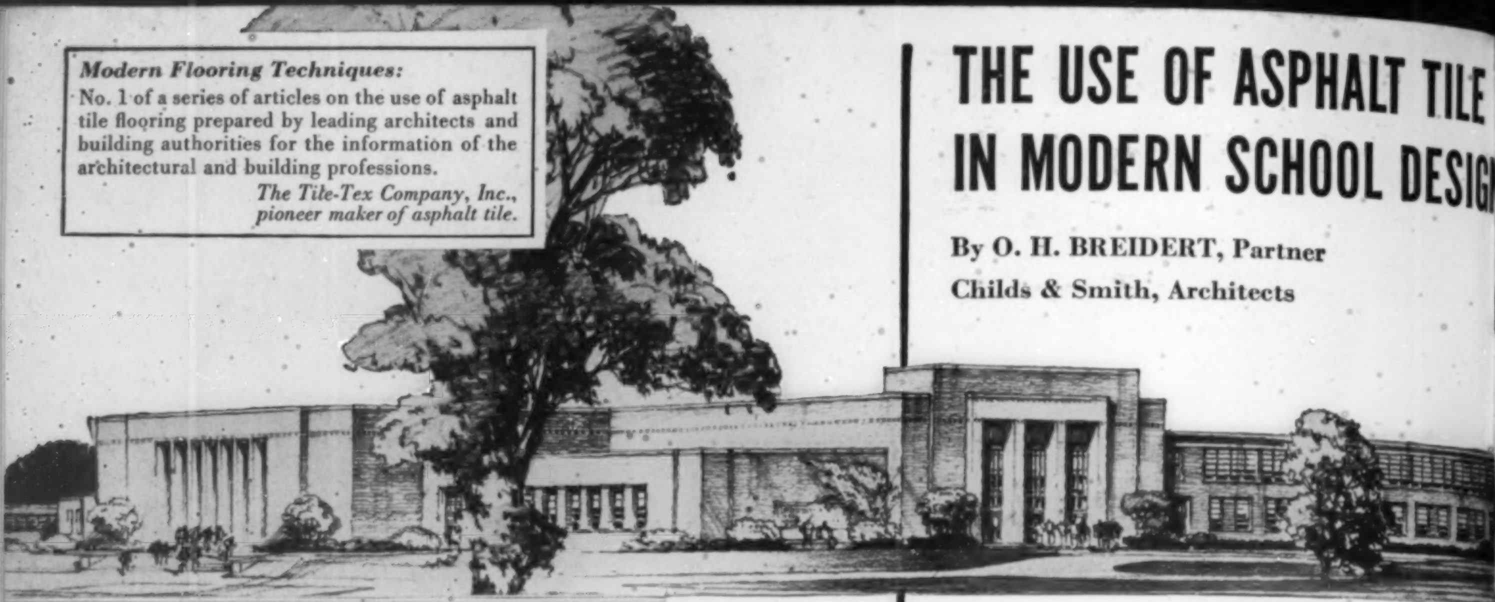
# THE USE OF ASPHALT TILE IN MODERN SCHOOL DESIGN

**By O. H. BREIDERT, Partner**
**Childs & Smith, Architects**



In a senior high school, as illustrated above, we find that asphalt tile floor covering and base is most practical and economical throughout *all* rooms and corridors, with the exception of the gymnasium, shower, locker and toilet rooms and industrial arts department.

IN A continuous practice of architecture over a period of 35 years, we have found that a floor and base of asphalt tile is the most practical and economical type of floor covering for new educational buildings both from the standpoint of initial *and* maintenance costs.

Asphalt tile floors, if properly cleaned, waxed and buffed after installation, require a minimum amount of maintenance throughout the year to keep them clean and bright in appearance. Thorough cleaning and waxing by an efficient janitorial staff several times a year along with regular daily sweeping, will keep an asphalt tile floor in excellent condition for many years.

With the proper handling of design and color combinations, the architect may use asphalt tile to design school floors to fit any decorative requirement. Asphalt tile can be obtained in a variety of colors and sizes. This makes it possible to use simple designs employing one marbleized color throughout the classroom or more complex decorative design in entrance lobbies, foyers, corridors and special rooms.

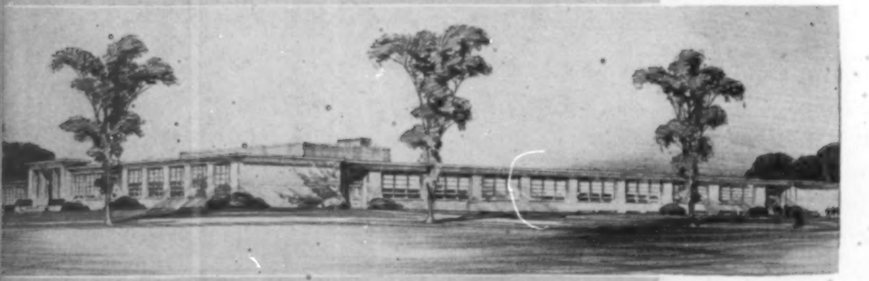
Asphalt tile is the only type of resilient flooring which can be installed safely over concrete sub-floors in direct contact with the earth. Its performance is not affected by normal moisture and dampness.

### Recommended uses of Asphalt Tile in specific areas

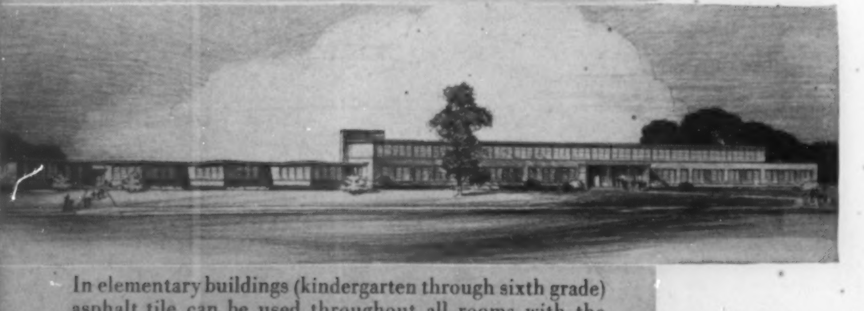
***Corridors*** • Asphalt tile is a most practical flooring for corridor and stair hall use because of its long wearing qualities. Attractive pattern and pleasing color combinations may be devised to add color and interest to these areas. Where corridors must necessarily be narrow, asphalt tile floors can be laid out to give the effect of greater width. Recommended, too, is the use of directional lines to indicate student traffic.

***Classrooms*** • An asphalt tile floor laid over concrete and with a set-on base is ideal for all classrooms in elementary through junior college buildings. In the classroom sketched at right, light colored marbleized tile in ⅛ inch thickness in standard 9 x 9 or 12 x 12 inch sizes is indicated. Light colored asphalt tile provides needed light reflection and conforms to the modern trend in classroom color schemes, namely, natural colored furniture and light wall and ceiling decoration.

Postwar school model. Asphalt tile to be used here in all except general toilet areas. Where community activities require constant use of the combination gymnasium-auditorium, an asphalt tile floor is recommended.

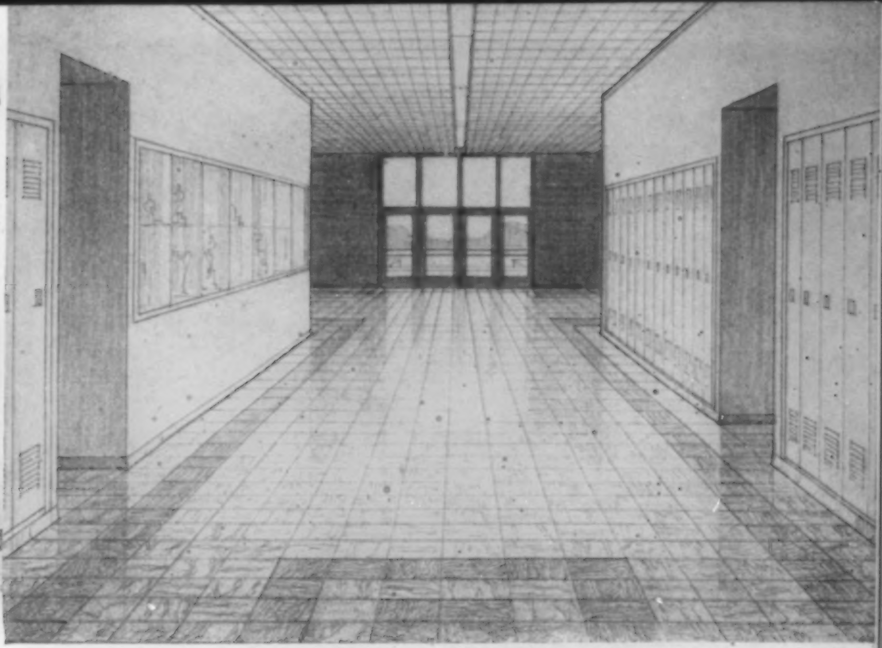


Our plans for a junior high school call for asphalt tile in all rooms and areas except the gymnasium and general toilet and locker rooms where ceramic or terrazzo floors will be specified.



In elementary buildings (kindergarten through sixth grade) asphalt tile can be used throughout all rooms with the exception of general toilet rooms, where ceramic or terrazzo floors are recommended.

*The architectural firm of Childs & Smith, Chicago, Illinois, has been in constant touch with problems of school design for 35 years. Its current school work consists, in part, of elementary, vocational, junior and senior high schools and junior colleges plus other special school buildings for these and other communities: Hinsdale, Ill., Shelbyville, Ill., Watseka, Ill. Wilmette, Ill., Kankakee, Ill., Flossmoor, Ill., Cedar Rapids Iowa, Clinton, Iowa and Wisconsin Rapids, Wis.,*



A marbleized floor in one color is recommended because it doesn't distract pupils and is easiest to maintain.

***Lunchroom, Cafeteria and Kitchen*** • A greaseproof 3/16 inch asphalt tile is advised for all food serving or dining areas. An interesting floor pattern is important because these, like all rooms under the modern school plan, should be designed for a dual function. The cafeteria dining area shown at right below can be converted quickly into a room for school parties and dancing. A properly treated asphalt tile floor is an excellent surface for dancing.

***Kindergarten or Play Rooms*** • Asphalt tile floors have many advantages in elementary (kindergarten through sixth grade) schools, especially in play room areas where game and court lines are required. These lines can be set in a plain, light colored asphalt tile in a field of medium colored marbleized tile, thus eliminating constant repairing and repainting of the lines. Attractive floor designs are particularly important in modern educational programs for younger children.

***Toilets and Lavatories*** • Asphalt tile is an excellent floor covering for small toilet rooms and lavatories in connection with kindergarten and lower grade rooms, toilets in administration and health departments and teachers' rest rooms. For large general toilet rooms, showers and locker rooms, ceramic tile, terrazzo, art marble or marble are more practical materials.

***Renovating and Rehabilitation*** • In addition to new educational structures asphalt tile is being used in the rehabilitation of existing schools to reduce floor maintenance costs—to solve the problem of floor repair economically—to provide a more comfortable floor—and to change the purpose and character of specific rooms.

• • •

*The Tile-Tex Company is proud of the role that Tile-Tex* Asphalt Tile has played in the building of America's Schools. This quality asphalt tile flooring has been thoroughly proved in over 23 years of service in school buildings. For more information or reprints of this article, write The Tile-Tex Company, Inc. (subsidiary of The Flintkote Company), Chicago Heights, Illinois. Sales offices in Chicago, New York, Los Angeles and New Orleans.*

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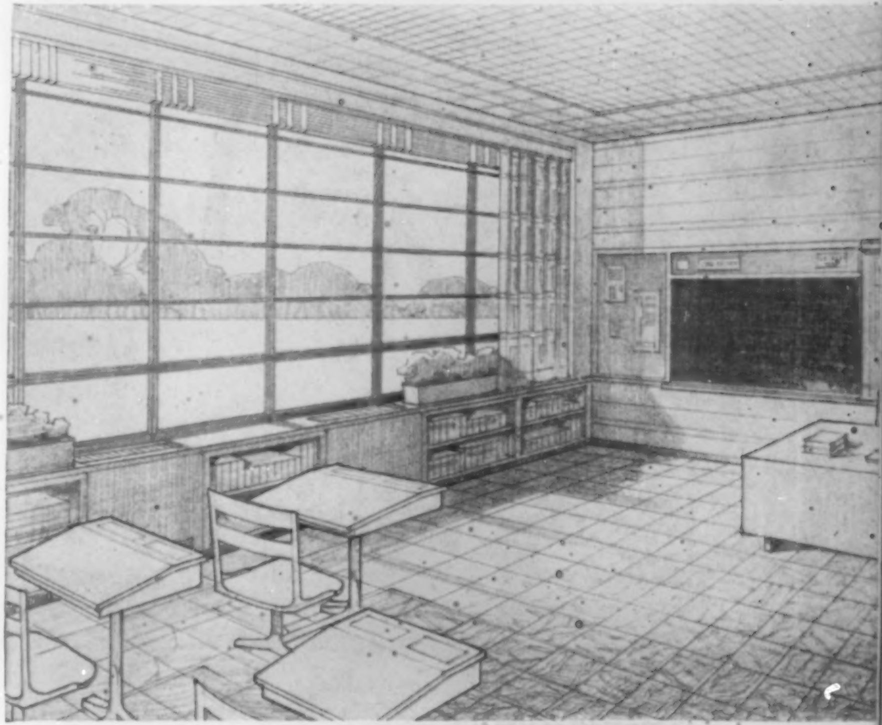

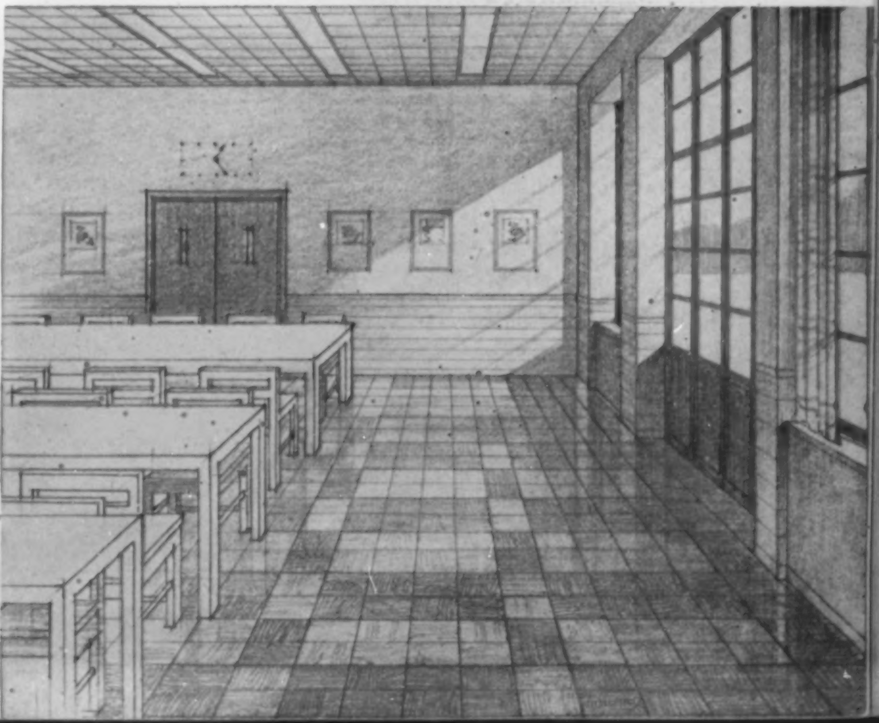

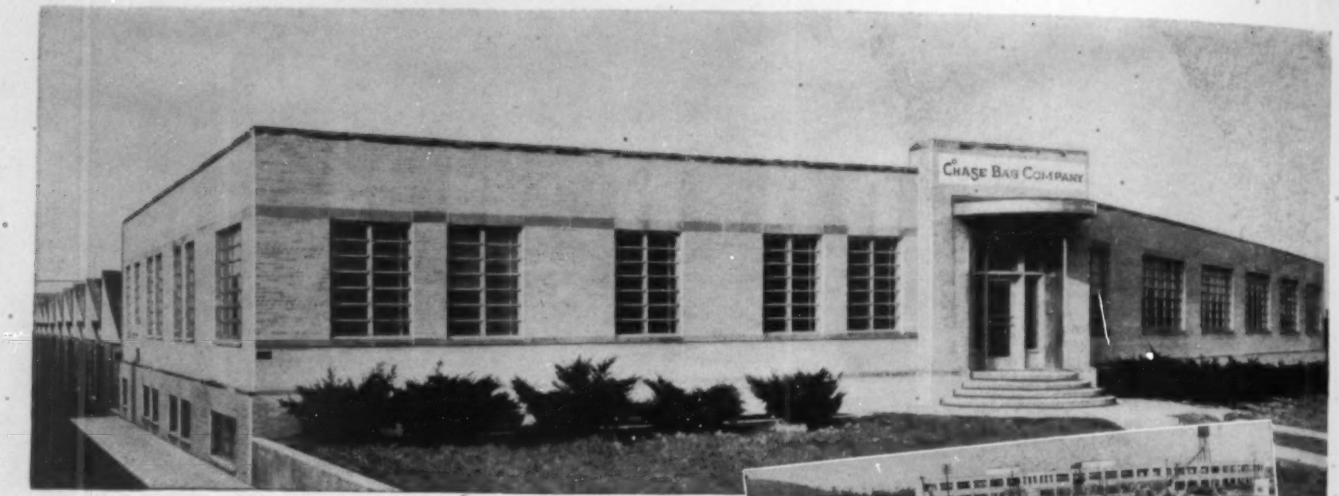

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### MAXIMUM EFFICIENCY—MAXIMUM COMFORT

The illustrations show typical design and procedure. Pipes were welded into grids for manufacturing, warehouse and garage areas, formed in sinuous coils for second floor areas. Hot water is used for heating. The building was divided into zones with individual circulators used for each. Shortly after one building was completed, outside temperatures dipped to 15° below. Comfort conditions within the plant were reported as "excellent."

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# ARCHITECTURAL

# RECORD

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*Vol. 103 • No. 4* **April 1948**

**PRECEDENTS, PROTOTYPES AND PLAGIARISM** . . . . . . . . 91

An Editorial . . . by Kenneth K. Stowell

**JEFFERSON MEMORIAL COMPETITION WINNERS** . . . . . . . . 92

Saarinen, Saarinen and Associates Win $40,000 Top Prize in Architectural Competition for Jefferson National Expansion Memorial for St. Louis Commemorating Louisiana Purchase

**A SMALL HOUSE OF IMPRESSIVE STATURE** . . . . . . . . . . 104

House for Dr. and Mrs. Alex J. Ker, Marin County, Calif. Fred Langhorst, Architect

**BUILDING TYPE STUDY NO. 136 . . . STORES** . . . . . . . . 109

**CURRENT TRENDS IN STORE DESIGN** . . . . . . . . . . . . 109

By Morris Ketchum, A.I.A.

**PROJECTS**

- Lord & Taylor's Westchester Store. Starrett & Van Vleck, Architects; Raymond Loewy, Associates, Designers; George A. Fuller & Co., Builders . . 111
- Bullock's Palm Springs Store, Calif. Walter Wurdeman and Welton Becket, A.I.A., Architects . . . . . . . . 123
- Salon Lenthéric, New York City. Harrison & Abramovitz, Architects; Ruby Ross Wood, Interior Decorator; Lighting by Feder . . . . . . . 128
- Camera Store for Photo Art Company, Trenton, N. J. J. A. Fernandez, A.I.A., Architect . . . . . . . . . . 132
- Selby Shoe Store, West Palm Beach, Fla. Igor B. Polevitzky, A.I.A., Architect 134
- Bostonian Shoe Store, Chicago, Ill. Morris Lapidus, A.I.A., Architect . . . 135
- Carver's, Custom Tailors, Los Angeles, Calif. Burke & Kober, Designers . . 136
- Florist's Shop, New York. Marvin J. Neivert, Architect . . . . . . . 138
- Lindel's Jewelry Store, Toledo. Bellman, Gillett and Richards, Architects . . 139
- Irene Burke, Long Beach, Calif. Kenneth S. Wing, Architect . . . . . . 140
- Guild House, Long Beach, Calif. Kenneth S. Wing, Architect . . . . . . 142
- Liquor Mart, North Station, Boston, Mass. David J. Abrahams, Architect . . 144

**ARCHITECTURAL ENGINEERING** . . . Technical News and Research . . . 145

**PRACTICAL ASPECTS OF THE HEAT PUMP** . . . . . . . . . . 145

By W. E. Johnson

**SANDWICH PANELS TESTED FOR THE SMALL HOUSE** . . . . . 150

Resin-treated paper cores make a stiff, strong panel for structural use

**TIME-SAVER STANDARDS** . . . Store Lighting Practices . . . . . . . . . 152

Recommendations of the Store Lighting Committee, Illuminating Engineering Society

**PRODUCTS** . . . for Better Building . . . . . . . . . . . . 154

**MANUFACTURERS' LITERATURE** . . . . . . . . . . . . . . 160

**THE RECORD REPORTS** . . . News from the Field . . . . . . . . . 7

**CONSTRUCTION COST INDEXES** . . . . . . . . . . . . . . 26

**AN ARCH IS AN ARCH IS $y^2 = 2px$ (SOMETIMES)** . . . . . . 28

**REQUIRED READING** . . . . . . . . . . . . . . . . . 180

**EMPLOYMENT OPPORTUNITIES** . . . . . . . . . . . . . . 228

**INDEX TO ADVERTISEMENTS** . . . . . . . . . . . . . . . 244

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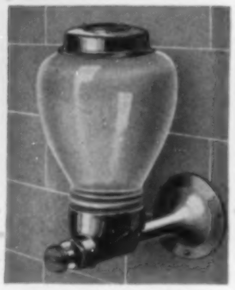
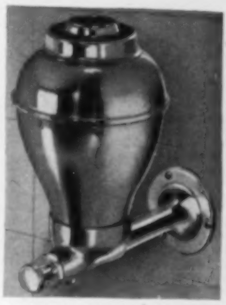
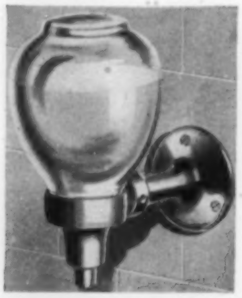

M-807 Horizontal type, glass container


M-807-MJ Horizontal type, metal container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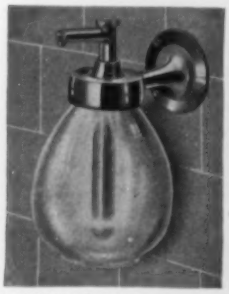
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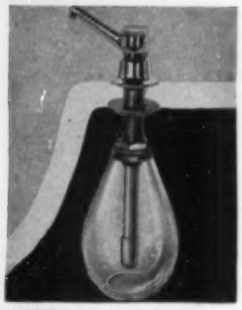
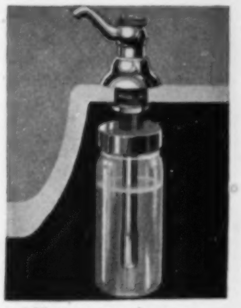

M-801 Pear shaped glass container


M-829 Narrow glass container

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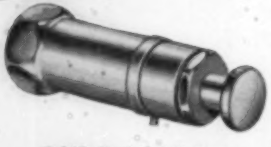
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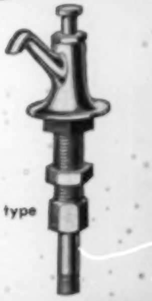
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**Watrous SOAP DISPENSERS**

# THE RECORD REPORTS

## *New Housing Legislation Begins to Shape Up Construction Activity Centers Shift to West and South • Costs Are Approching Average*

Housing stir in Congress this year ranges beyond the much-noised extension of rent controls and emergency financial aids. New legislation is taking shape. While, as this is written, it is early enough to get a bird's eye view of proposals, whether enactment will actually come before adjournment is not clear.

A look at both Administration and Congressional thinking gives a good idea of what is in the wind.

Administrative thinking is effectively summed up in President Truman's recent communication to Congress in which he asks for an integrated housing program to obtain "more housing at lower cost, both in the immediate future and for the long run."

In requesting an additional $2 billion of insurance authorization until March, 1949, he advises special emphasis on rental housing. He wants further to reduce costs, assist communities in low-rent projects, and help cities rebuild run-down areas, and recommends steps for better distribution of building materials.

Other points:

1. Yield insurance for large-scale rental projects.
2. An integrated program of building research.
3. Modernization of building codes to permit prompt use of technical advances.
4. Loan guarantees before regular mortgage loan financing is available (for on-site construction).
5. Extension of production loan guarantees for prefabrication to cover entire period from start in plant to erection on site.
6. Insurance of loans to housing cooperatives.
7. Financial aids and expanded building services for rural housing.
8. 100,000 public housing units each year for the next five years.

### Plans in Congress

On the Congressional side of the ledger, many of the Administration's ideas are duplicated, some modified, and others added. A paramount point in Congress is the establishing of a national housing policy. (House Banking Committee Chairman Wolcott's stress on this was set forth recently in the ARCHITECTURAL RECORD.) Senator McCarthy's draft bill on housing projects a policy which would include (a) a decent home for every American family, (b) elimination of slums, (c) a stabilized building industry, (d) chief reliance on private enterprise; it specifies the types of federal assistance to be given.

In his report as vice chairman of the Joint Committee on Housing, Senator McCarthy recommends encouragement of rental housing, transfer of Veterans Administration housing functions to FHA, restricting present public housing to low-income groups (he favors separate legislation on public housing), coordination of research in HHFA, as well as work on standard building codes, enactment of a long-range slum clearance program separate from public housing and restricted to cities without cost-increasing building codes, increased salaries for housing agency heads, and more personnel for apprentice training.

The report, discussing cost reduction techniques, commends modular coordination as "perhaps the most fertile field in which to bring about lower costs in home construction." On financing, it supports aid to veterans cooperative housing ventures.

Joint Committee Chairman Gamble emphasizes the separation of slum clearance and public housing, pointing out that slum clearance is urban redevelopment and not necessarily tied to housing.

Senator Wagner, in a study of slum clearance, reports that an overwhelming majority of governors, mayors and prominent private citizens (responding to a survey) urge the need for federal aid in housing for low-income families and endorse slum clearance.

### Price Controls Unlikely

Price controls apparently are not in the cards during the present session of Congress. Any favor that may have carried over from the fall session was largely dissipated by the tumble in commodity markets. The rise in steel prices renewed control talk slightly. It brought action by President Truman, who asked the Justice Department to look into factors causing the rise in such a basic commodity. However, legislators doubt passage of a new law on prices. Export controls, on the other hand, are due to be continued.

The Justice Department, it should be noted, has been given more funds by the House to carry out its Anti-Trust Division work. The Division has various cases pending in the field of building.

### Voluntary Allocations

In carrying out the voluntary agreements program enacted by the Congress in its special session last fall, the Department of Commerce has set up an Office of Industry Cooperation with one of the seven staff members to deal with building materials. Mathias W. Niewenhous, who will work with the building trades industry, entered government service

*(Continued on page 10)*

PILSNIFF
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NORA
NILSNIFF
brenda
1918-1948
Alan Dunn

— Drawn for the RECORD by Alan Dunn

A GREAT NEW COIL JOINS A

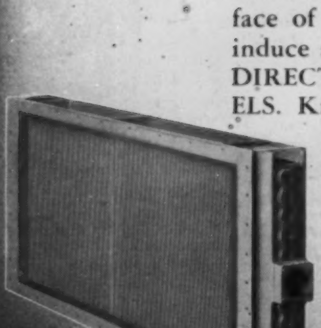
# TRANE Announces a Major Advancement in Non-Freeze Coils

Here is a radically improved line of tube-within-a-tube coils. The steam distributing tubes in these new coils are equipped with *kinetic orifices.*

These amazing orifices feed steam faster; cause condensate to be eliminated faster. Protection against freezing is multiplied. The coils are non-stratifying. There is greater steam modulation. Coil capacity is sharply increased.

With an ordinary tube-within-a-tube coil, steam is released to the condensing tubes through a series of small, flush holes in the steam distributing tubes. In practical operation, steam from these small holes strikes the walls of the condensing tubes and mushrooms in all directions. This retards condensate flow; actually holds it up in the tubes. Result: the coil has the capacity of a *hot water coil.*

Trane's new *kinetic orifices* overcome these difficulties. Extending beyond the surface of the steam distributing tubes, they induce a jet flow of steam IN THE SAME DIRECTION THE CONDENSATE TRAVELS. Kinetic energy of the steam is imparted to the condensate, literally pushing it out of the coil, and *bringing live steam in rubbing contact with the condensing tubes.* Result: the great new line of Trane SD Coils delivers FULL STEAM CAPACITY—a capacity increase of 15% over old types—without any increase in size, weight, or price.



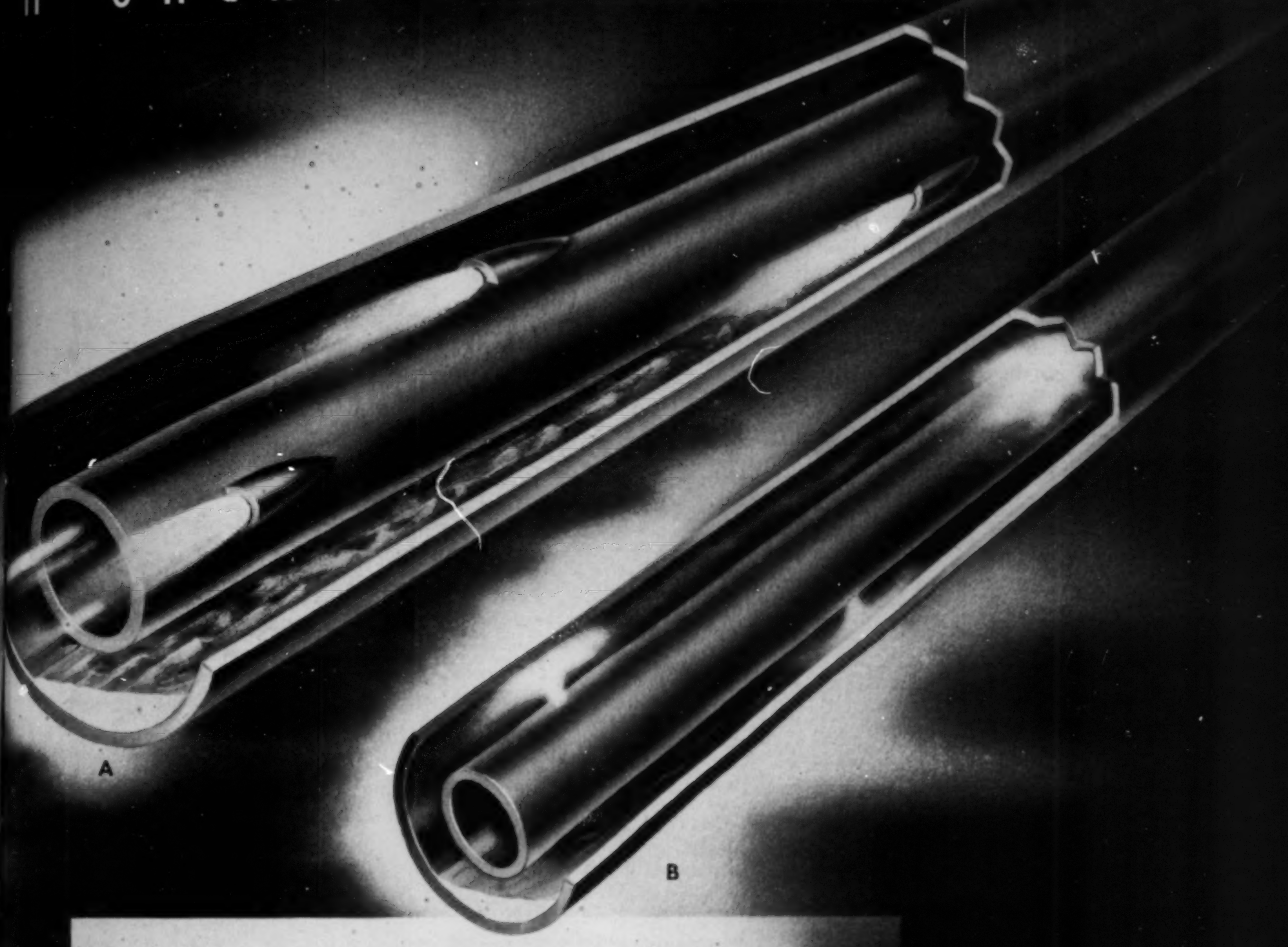
We sincerely believe that the announcement of this remarkable Kinetic Orifice marks the greatest advancement in non-freeze coils since the introduction of the steam distributing tube.

The Kinetic Orifice is an example of the constant effort of Trane engineers to keep the great Trane line of heating and air conditioning equipment in the forefront of industry. So complete is this line that architect, engineer and contractor can select exactly the right combination for any application.

And since these products are designed together and built together for use together, a perfectly integrated, up-to-the-minute system is secured. You have a made-to-measure system; an undivided responsibility system.

You pay no price bonus for Trane products. Trane factories use modern line production, and the mass production economies are passed along to you in the form of higher quality. Over 200 Trane field engineers in 85 principal cities offer their constant co-operation. THE TRANE COMPANY, LA CROSSE, WISCONSIN. Also: TRANE COMPANY OF CANADA, LTD., TORONTO, ONTARIO.

S A GREAT LINE OF PRODUCTS



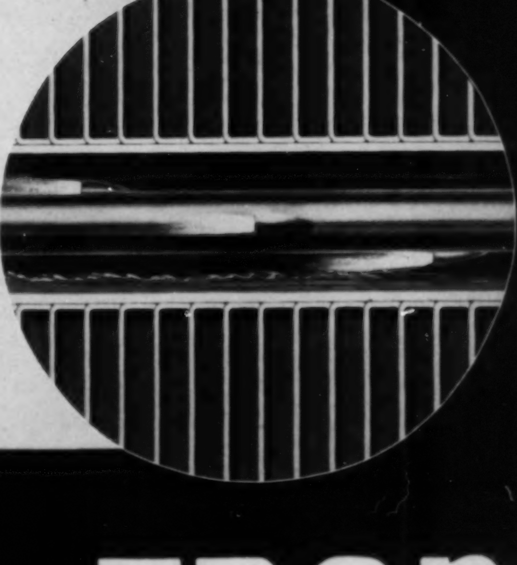
## The Trane KINETIC Orifice

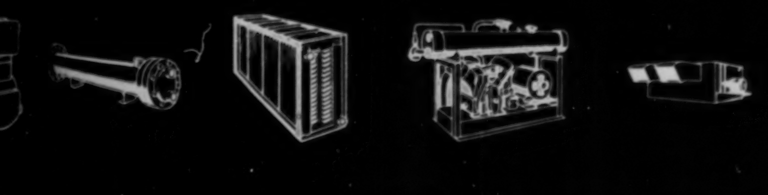
**The Old Way:** Note, at "B," how steam released from flush holes in the steam distributing tube strikes the wall of the main tube and mushrooms in *all* directions. This holds back condensate; reduces coil capacity.

**The Trane Kinetic Orifice Way:** Illustration "A" shows how the Trane Kinetic Orifice is designed to release steam in the direction of condensate flow, causing positive accelerated flow. Mushrooming, stratification, freezing eliminated. Capacity increased 15% without increase in weight, size, or cost.

**New Trane Kinetic Orifice Coil*:** At left is shown a typical new Trane SD Coil, designed for same-end connections. A complete line of the new SD coils is available for either same-end or opposite-end connections.

*Patents pending





TRANE
HEATING AND AIR CONDITIONING

# THE RECORD REPORTS

(*Continued from page 7*)

in 1940, having been associated most of his business life in building operations. He was deputy director of WPB's Lumber Division and subsequently director of CPA's Forest Products Division. Until recently he was consultant with a Massachusetts home building firm.

### To Study Panel Heating

The Department wants Congress to provide more funds for its Bureau of Standards work on building technology. In this connection the Bureau advises that it plans to investigate the engineering features of panel heating and floorline radiation. It hopes to determine principles to guide engineers in the design of heating equipment and arrangement of heating systems.

First phases of an investigation on new types of concrete reinforcing bars have been completed. Use of these bars, Bureau officials comment, will ultimately save approximately one-third of the steel now needed in some classes of work. In the past year, the Bureau obtained engineering data on the properties of light-weight concretes, which are finding use in building, particularly in prefabricated or partially-prefabricated construction.

### Construction Shifts

In the years since 1939, U. S. construction has shifted its centers of activity, moving westward and southward. In the course of a detailed study, 1939–1947, staff workers of the Commerce Department's Construction Division find that some areas which gained during the war are holding or even adding to their gains, others are resuming their prewar standing, and some which lost in the war years are regaining and exceeding their 1939 status.

By the end of the first postwar year, 1946, the East North Central states replaced the Pacific states (which had zoomed from third to first place by 1944) as the leader in construction, and the Middle Atlantic states, first in 1939, fell to third place. The Pacific states were second, although in home building they ranked first.

### South Atlantic Gains

Almost as significant as the rise of the Pacific group, say CD's fact-finders, is the advance of the South Atlantic states to fourth position. They comment:

"Considered together with population and income changes, the South Atlantic states now offer one of the largest potentials for growth in business activity and certainly exhibit a tremendously significant change from their predominantly agricultural prewar status." In 1946, $1300 million of construction was put in place against a billion and a half in the Middle Atlantic states which comprise New York, New Jersey and Pennsylvania.

### California Leads

California became the leading state in construction activity after 1939 and remains so. From 1939 through 1946 it boosted its share of U.S. total construction from 10.7 to 14.2 per cent, the largest gain of any state. In the East North Central region Ohio and Michigan expanded both in construction and, like California, in population. The growth pattern in Texas has been similar to that on the West Coast. Growing population and mounting vacationist business brought a construction boom in Florida in 1946, which lifted the state's share of construction from 2.2 per cent prewar to 3 per cent or nearly $300 million in 1946.

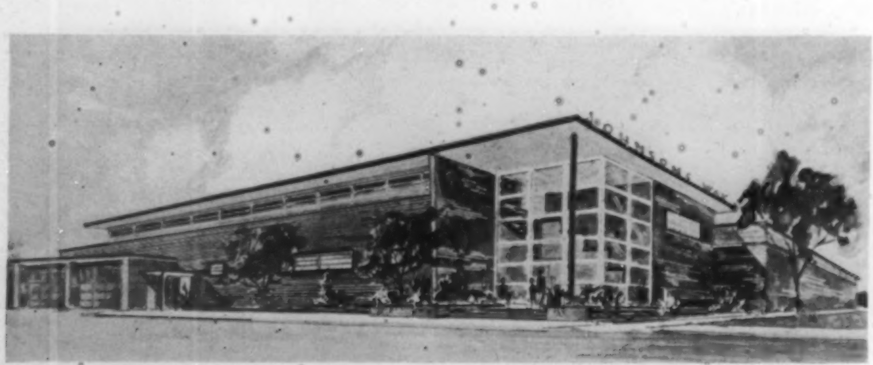
Harris & Ewing Photo

*The much publicized White House balcony is now a fait accompli*

### Costs Approach Average

Analyzing construction costs, CD's study shows that building construction costs during the 1939–1946 period tended in each region to approach the national average. The three regions which had relatively low costs in 1939 —

(*Continued on page 14*)



*Brick veneer and glass warehouse under construction for S. C. Johnson & Son, Inc., in Long Island City will provide 35,000 sq. ft. of office and storage space*

## *BUILDING NOTES*

### New Warehouse

A new 35,000 sq. ft. office and warehouse for S. C. Johnson & Son, Inc., Racine wax manufacturers, is now under construction in Long Island City, N. Y., and is expected to be completed by Sept. 1st. The $500,000 brick veneer and glass building is designed for modern material-handling equipment, will contain inside truck docks to accommodate four trucks at one time. The office section will be fluorescent-lighted and air conditioned. Construction is under the supervision of Lockwood Green Engineers, Inc.; John Halama of the Johnson Company is associate architect.

### Medical Center

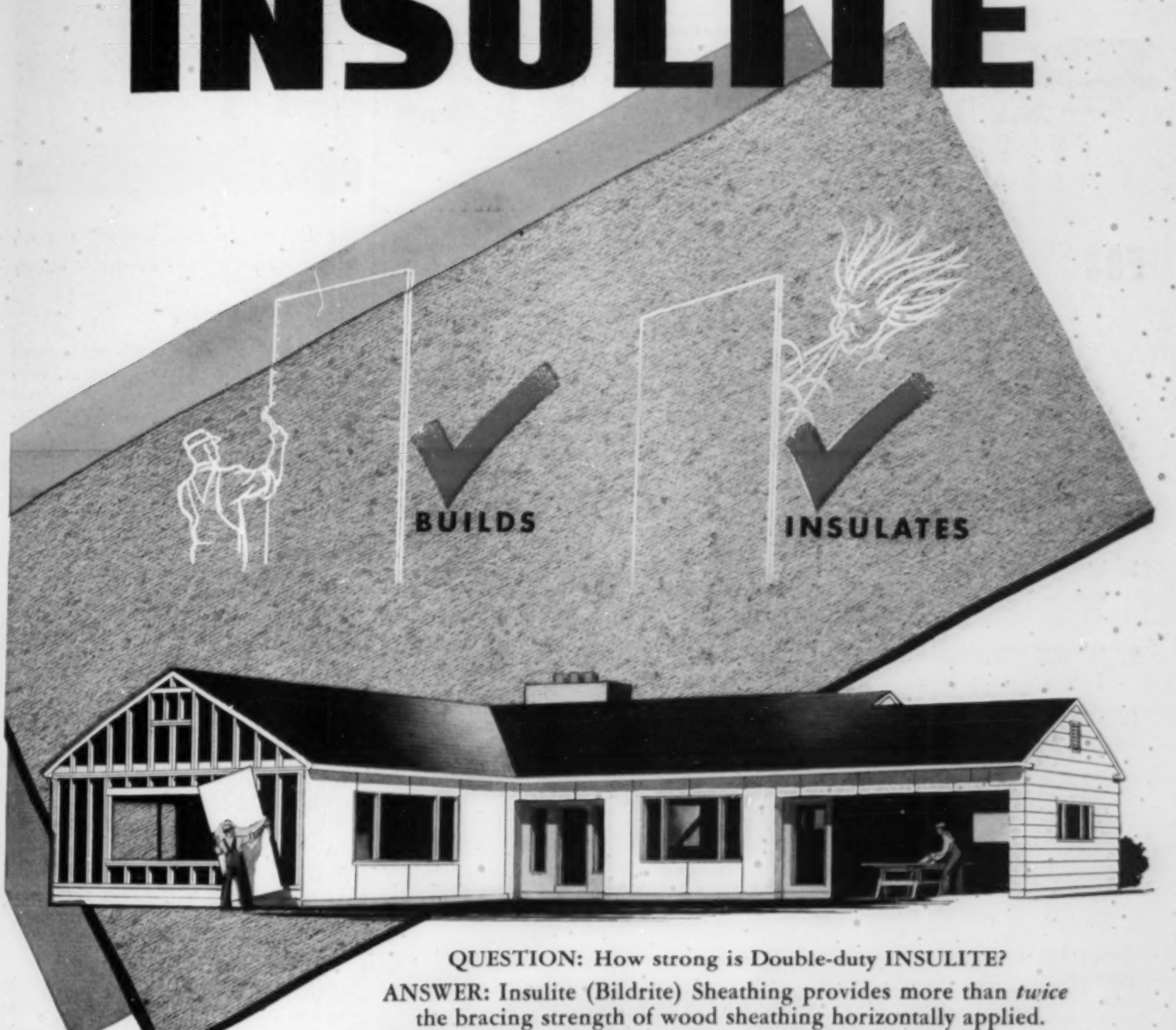
Construction of the University section of the New York University-Bellevue Medical Center in New York City will get under way by mid-summer or early fall, Edwin A. Salmon, Director of the Center, has announced.

First buildings to be started will be the Hall of Residence, the Alumni Hall, and new clinical laboratories and classrooms for the College of Medicine. All buildings will be of steel and reinforced concrete construction, with a warm-toned limestone and brick exterior. Architects for the various buildings are Skidmore, Owings & Merrill.

(*Continued on page 12*)

# DOUBLE DUTY

# INSULITE



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Refer to Sweet's File,
Architectural Section 10a/9

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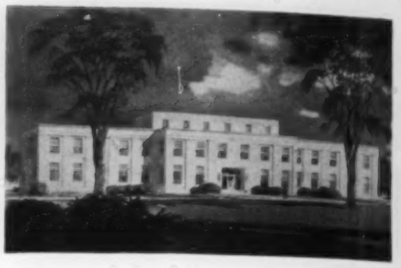
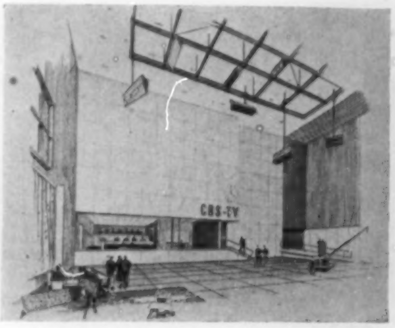
(*Continued from page 10*)



*The first of Sylvania Center's research laboratories, designed by Aymar Embury*

### Physics Laboratory

The first of a series of modern research laboratories for Sylvania Center, Bayside, N. Y., is expected to be completed by next fall. Fully equipped for scientific research in fluorescent lighting, radio, radar, television and the general electronics field, the building will cost about $900,000. Architect is Aymar Embury.



*Flexibility is the theme of new CBS television studios in midtown New York*

### Television Studios

Plans for what is expected to be the nation's largest television studio plant have been announced by the Columbia Broadcasting System.

To occupy more than 700,000 cu. ft. in the Grand Central Terminal Building in midtown New York, the new studios and their associated facilities will be equipped with the most advanced television apparatus.

The studios are planned for flexibility of production allowing for either a number of moderately sized sets to permit immediate scene changing merely by switching from one camera to another, or use of large scale sets for elaborate productions.

Plant facilities will comprise two large studios with associated control rooms, scenery and construction rooms, film facilities, maintenance, wardrobe and property storage quarters, master control room, and offices for operational officials and crews.

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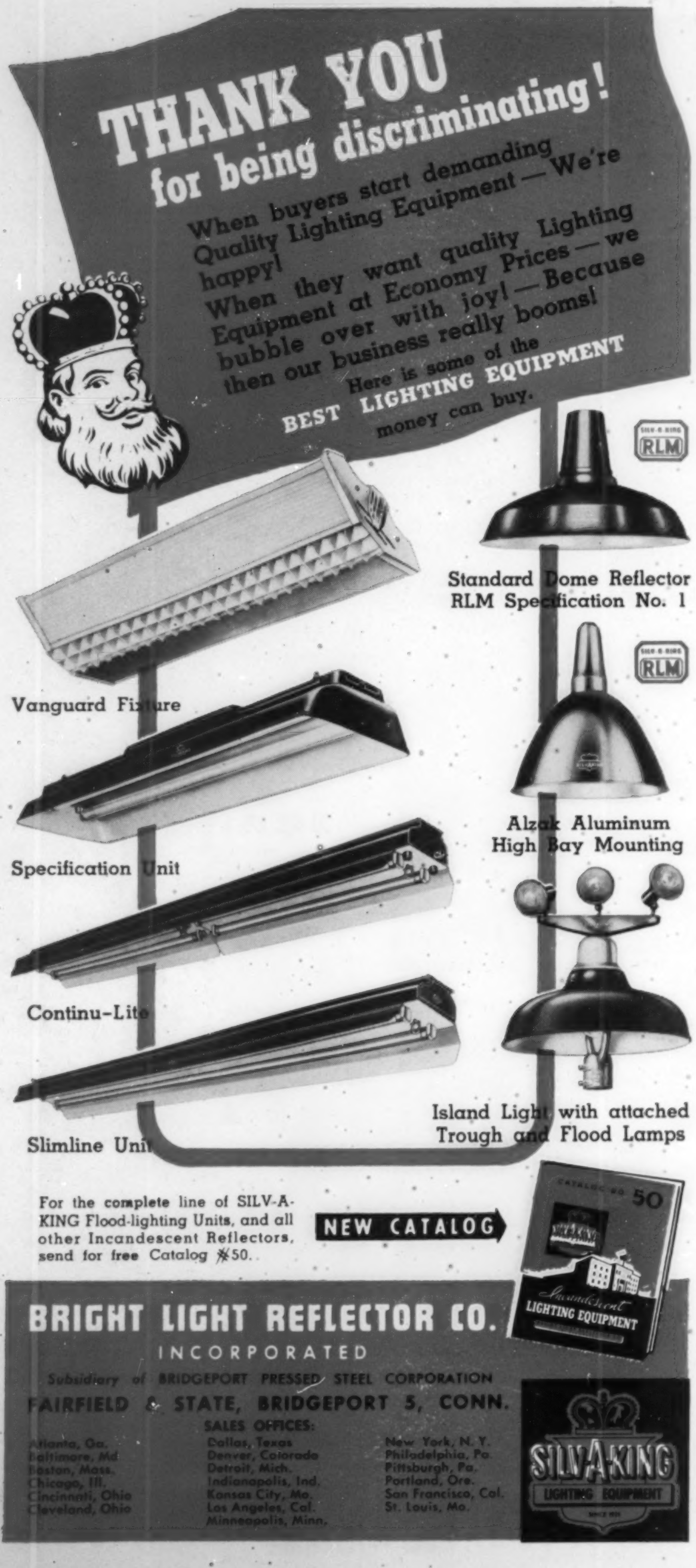

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## THE RECORD REPORTS

(*Continued from page 10*)

South Atlantic, East South Central and West South Central — remained below the average in 1946 but to a lesser degree.

No consistent relationship is found between changes in construction volume and costs. On the other hand, the point is made that costs have a more significant long-range effect on a region's economy than the slight short-run effect they may have on new construction. Costs during a period of high building activity, the analysts point out, set the level of structural capital charges for construction which must be paid in the future by the people in the area.

### Modernization Begins

Describing the construction shift westward and southward as the result of manufacturing and commercial development in the newer areas, the analysts comment that structures of some of the older states have become obsolete and modernization is getting under way with the help of public redevelopment plans. They cite the work of the Port Authority of New York, the port rehabilitation work at Boston, the great postwar highway programs of New York and Pennsylvania, and the state-sponsored public housing programs of New York, Massachusetts and Connecticut. Modern factories for light manufactures, new additions to steel plants, increased research facilities, and planned medium-rent residential communities will serve, they add, to improve the competitive positions of the New England and Middle Atlantic regions industrially and from the viewpoint of dwelling desirability.

### Farm Households Fewer

The nation's households are concentrating more and more in urban areas, the Census Director, J. C. Capt, advises. A sample survey reveals that in April, 1947, about 83 per cent of U.S. households was located in cities, villages and other non-farm areas compared with 80 per cent in 1940 and 78 per cent in 1930. The proportion located on farms has gone down sharply. In 1930, 22 per cent was on rural farms; in 1940, 20 per cent; and in April, 1947, about 17 per cent.

Between 1940 and 1947 the net growth of households was about 12 per cent in the Northeastern states, about 10 per cent in the North Central states, and about 25 per cent in the West. No significant change was found in the South.

The Census Director says the pattern of change in the number of households

(*Continued on page 16*)

Here's an attractive basement room combining design and construction features that would be welcome in any home, whether new or modernized. Best feature of all is the **ARCOLINER** Wet Base Oil Boiler, which furnishes carefree heating comfort for the whole house. With its handsome Canyon Two-Tone Red jacket, the **Arcoliner** harmonizes with any modern color scheme or remodeling plans. And because of its water insulated base, the **Arcoliner** can also be installed in first floor utility rooms.

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This beautiful bathroom is complete with practical ideas and smart plumbing fixtures to make any bathroom one of the most efficient rooms in the home. The inviting **MASTER PEMBROKE** Bath with its convenient rim seat, low sides and wide, flat bottom is made in both recess and corner models and in various sizes. The **MASTER ONE-PIECE** Water Closet is of genuine vitreous china and has quiet, thorough flushing action. The square bowl, shelf back **COMPANION** Lavatory is also of genuine vitreous china. All three fixtures come in white and many attractive colors.

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They took a trip
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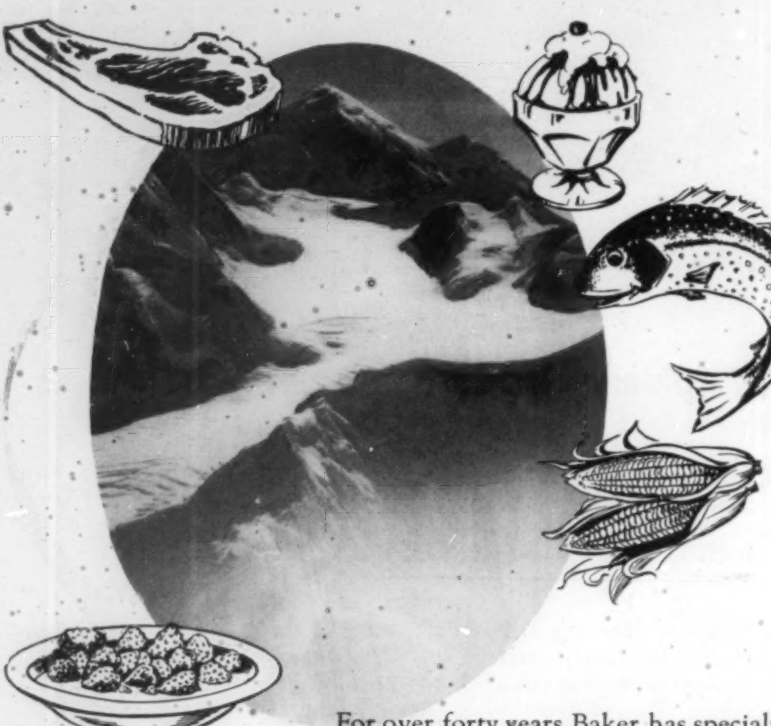

Photograph by Bradford Washburn

For over forty years Baker has specialized in the refrigeration and air conditioning equipment that serve America's food-processing industries. Today, under the magic fingers of Baker *controlled* cold, billions of pounds of food each year are protected on their often months-long trip to the nation's tables. In Baker's broad line you'll find a wide range of top-quality equipment for both Freon and Ammonia applications. In Baker's expert engineering, you'll find the knowledge to plan top-performance installations. Through Baker's nation-wide network of branch offices and expert distributors, you'll receive prompt service — in plans, installations, and maintenance. Consult Baker before you buy. Baker Ice Machine Co., Inc., South Windham, Maine. D-1

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## THE RECORD REPORTS

(*Continued from page 14*)

has been similar to the population change. In non-farm areas, however, households increased at a more rapid rate than the population and in rural-farm areas households declined less sharply than the population.

### Odds and Ends

Other construction developments:

1. Prefabricated home dealers will increase substantially in number this year, the Prefabricated Home Manufacturers' Institute reports. Companies surveyed plan to establish 700 new dealers in 1948, a 64 per cent gain over the 1100 authorized last year.

2. The Civil Aeronautics Administration is proceeding with grant offers to local sponsors for airport construction or improvement. A total of $13,000,000 was granted in 1947 to take care of 127 projects.

3. Non-farm mortgage financing continued to rise in 1947 but at a slower pace. It reached an estimated $11,400,000,000 — 10 per cent above 1946. Increase in the *number* of mortgages, however, states the Home Loan Bank Board, was only 2 per cent.

4. Over 500,000 World War II veterans bought homes of their own in 1947 with the aid of government-guaranteed loans under the G.I. Bill. Veterans Administration gives the total as 540,000 compared with 410,000 in 1946 — a total of 1,056,771 since the program started.

❖ ❖ ❖

### ON THE CALENDAR

*Through April 16:* "The Contemporary House and Its Neighborhood," exhibition sponsored by the New Jersey Society of Architects, and the New Jersey and New York Chapters of the A.I.A., New Jersey State Museum, Trenton, N. J.

*Through April 18:* "Stage Designs for the Ballet Society, 1947–1948," an exhibition of drawings and models, The Museum of Modern Art, New York City.

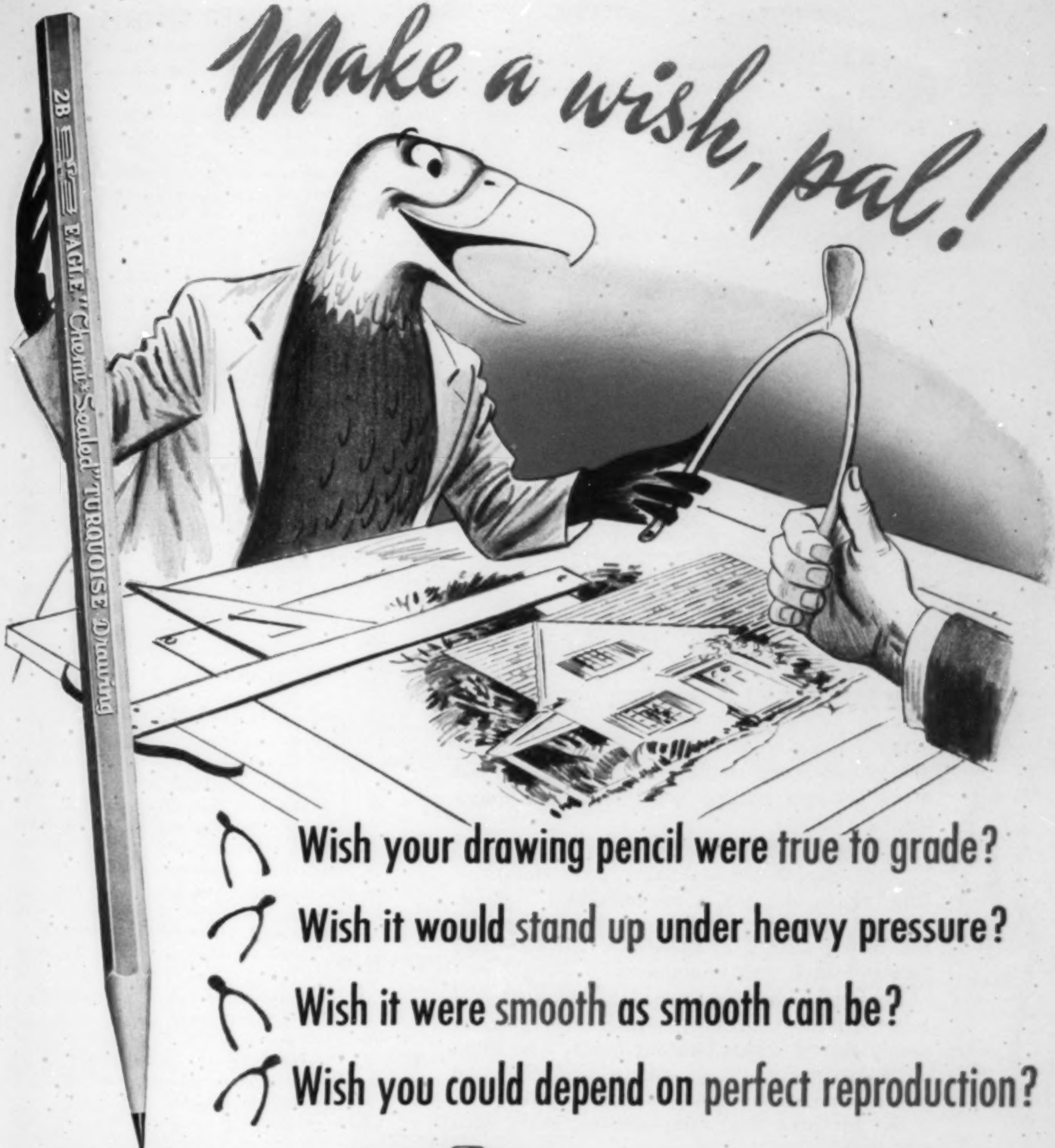
*Through May 2:* "The Kings College — A History of Columbia University," exhibition of Columbia memorabilia in honor of General Eisenhower's forthcoming inauguration as President of the University, Museum of the City of New York.

*April 7–9:* Spring Meeting, American Society of Civil Engineers, William Penn Hotel, Pittsburgh, Pa.

*April 7–14:* San Francisco National Home Show, sponsored by the San Francisco Real Estate Board and the

(*Continued on page 18*)

# *Make a wish, pal!*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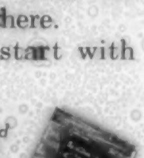
So, for long-time adaptability, start with oak floors.

ASK FOR ARCHITECTS' DATA BOOK—*which gives quick and usable information for specifying, laying, finishing and maintaining oak floors. Available from your local oak flooring dealers or from the National Oak Flooring Manufacturers' Association, 814 Sterick Building, Memphis, Tenn.*



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ADAPTABILITY · ECONOMY

## THE RECORD REPORTS

(*Continued from page 16*)

Associated Home Builders of San Francisco, Inc., Civic Auditorium, San Francisco, Calif.

*April 11–May 9:* "Modern Living" exposition featuring a $7500 two-bedroom house, New York Museum of Science & Industry, RCA Building, Rockefeller Center, New York City.

*April 13–16:* 18th Annual Safety Convention and Exposition of the Greater New York Safety Council, Hotel Pennsylvania, New York City.

*May 2–15:* Combined Arts Festival, featuring the Gimbel Pennsylvania Art Collection and an exhibition of about 50 drawings by George Biddle, Pennsylvania State College, State College, Pa.

*May 20–21:* Annual Spring Meeting of The Society of the Plastics Industry, featuring merchandising, technical and business sessions, Atlantic City, N. J.

*June 12–22:* Construction Industries Home and Building Exposition of Southern California, Pan-Pacific Auditorium, Los Angeles, Calif.

*June 21–25:* 51st Annual Meeting, American Society for Testing Materials, Detroit, Mich.

### ARCHITECTS' REGISTER

The first accredited listing of practicing New York architects has been compiled in a yearbook and register issued by the New York Chapter, A.I.A.

The 100-page manual, indexed for quick reference, lists alphabetically by firm name members of the A.I.A. who are in active practice in New York and also gives the types of architectural work executed by the firm or its members.

Included under the architect's name is a listing of the awards and honors he has received, his education, scholarships, employment record and experience in practice, as well as the states in which he is registered. A special section gives recognition to winners of architectural awards and honors.

Copies of the register may be obtained from the New York Chapter, The American Institute of Architects, 115 E. 40th St., New York 16, N. Y., for $5.00 each.

### AT THE COLLEGES

**New Schools**

Columbia University has established a School of Dramatic Arts and a School of Painting and Sculpture which will be combined with the School of Architecture and the Department of Music to form the Columbia University Arts Center. The newly created schools will accept students next September and plans are being made for the location of the Arts Center building which will in-

(*Continued on page 162*)

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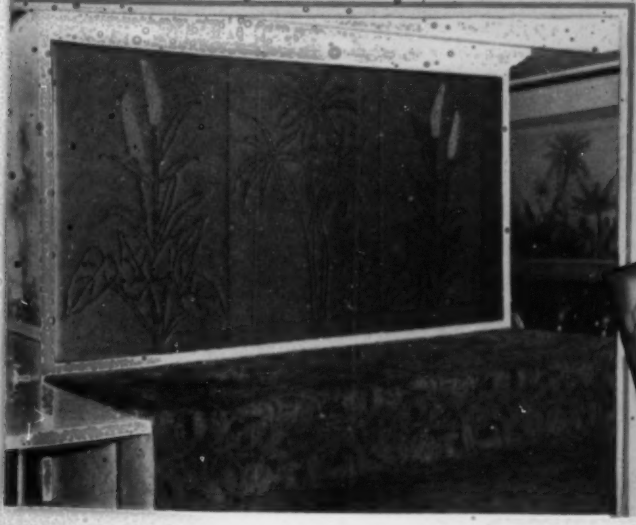
Brass nails on Coral DURAN form this attractive panel design. Beige DURAN in lower left corner.



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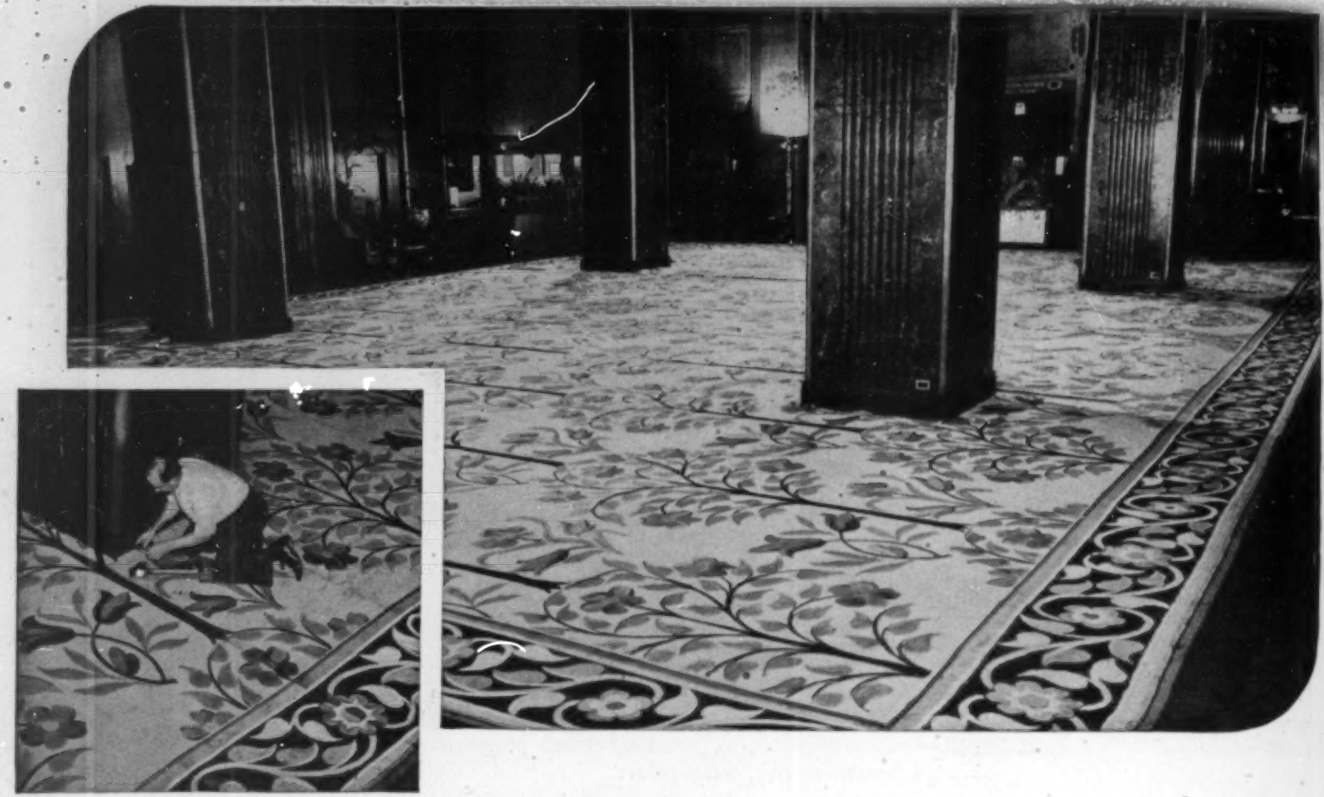

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**Breath-taking in size**—breath-taking in beauty! That's the specially designed and woven Bigelow Rug masterpiece you see above, in New York's famed Waldorf-Astoria Hotel!

Our designers planned it around the World Tree motif—to harmonize with the Scandinavian inspired décor. Our weavers loomed it—the largest rug ever produced by Bigelow—to cover *over 3300 square feet* of the Waldorf's main lobby!

Perhaps this is the most *unusual* assignment ever filled by Bigelow craftsmen. But the Bigelow *service*—specialized, custom planning by the Bigelow Carpet Counsel—is *entirely usual.*

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# PRACTICAL BUILDER

# OFFERS $2500.00 IN Prizes

## *FOR THE BEST IDEAS FOR THE "TRUE ECONOMY HOUSE"*

**Designs to embody the best ideas for the economical utilization of materials and methods—to achieve lower costs at no sacrifice in quality.**

---

### PURPOSE OF THE CONTEST:

To stimulate thinking and action in the direction of providing America with quality home construction and design at the lowest possible cost. The editors of PRACTICAL BUILDER believe that the building industry has the tools, materials and ingenuity to meet the great need for an "Economy House"—a good, substantial home priced to fit the average local weekly paycheck.

We believe that no new inventions are necessary—that the problem can be solved without any revolutionary manufacturing or building techniques. We think a new approach to the design problem, with new ideas, based on materials and equipment now available, plus the utilization of economies inherent in modern materials and techniques can produce the true "Economy House."

But, the benefits will not stop here. Inevitably these ideas and economies will find their way into higher priced homes, also.

Ideas submitted must embody sound construction and employ practical methods. They need not be in accord with any building code, FHA restrictions or labor practices. The ideas probably will not be in use today, even though the materials are. The house submitted may be "minimum" but cost reductions should not be achieved by omitting essential features or merely reducing the size.

The rewards to the winners are more than monetary. There is national recognition for the winners, with national publicity. There is personal glory and pride of achievement which cannot be measured in dollars.

### *LIST OF PRIZES*

A total of $2,500 will be awarded by PRACTICAL BUILDER on the following basis:

| | |
|---|---|
| First Prize | $1,000.00 |
| Second Prize | 500.00 |
| Third Prize | 250.00 |
| Fourth Prize | 150.00 |
| Next Two Prizes, Each | 125.00 |
| Next Three Prizes, Each | 100.00 |
| Tenth Prize | 10.00 |

In case of a tie, duplicate awards will be made.

---

### RULES OF THE CONTEST

1. *This competition will continue until midnight, September 15, 1948.*
2. *The competition is open to anyone in the building industry except employees of Industrial Publications, Inc., publishers of PRACTICAL BUILDER, members of the PB Staff, and members of their families.*
3. *Entries must be submitted in the form of outline house plans with construction details, where necessary, of the important contributions to cost savings. You need not submit an idea for a wholly new kind of house, but the idea you do submit should be incorporated in a definite house design.*

   *Entries should be accompanied by an explanation of the idea or ideas submitted telling also why and how you think it will result in cost savings not to exceed 500 words.*
4. *While drawings, sketches and descriptive material need not be in finished form, they must be in such condition as to convey the ideas clearly and quickly.*
5. *All entries must be postmarked not later than midnight, September 15, 1948. Entries to be returned must be clearly so marked and accompanied by sufficient postage to defray costs.*
6. *The decision of the judges is final. Awards will be made upon official announcement of the winners in the December, 1948, issue of PRACTICAL BUILDER.*
7. *In case of a tie, duplicate awards will be made.*
8. *All winning entries become the property of PRACTICAL BUILDER.*
9. *PRACTICAL BUILDER reserves the right to purchase at regular rates for publication any entries which do not win an award.*
10. *PRACTICAL BUILDER reserves the right to use any of the entries in any news releases, announcements or promotional work it chooses, giving proper credit to the contestants who submitted that idea.*

---

### TO ADVERTISERS AND AGENCIES

Any person, manufacturer, or advertising agency whose client sells to the building field, has a big stake in the ultimate value of this contest. Talk up the contest—tell your friends in the industry about it—show them this announcement.

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"Leads Editorially"

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Serving the Building Industry

•

**PRACTICAL BUILDER**
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CHICAGO 3, ILL.

### JUDGES OF THE CONTEST

The following nationally-known leaders in the building industry will serve on the Jury of Awards.

HENRY K. HOLSMAN
*Holsman & Holsman & Klekamp, architects*
*Chicago*

WM. H. SCHEICK, Director
*Small Homes Council*
*University of Illinois*
*Urbana*

LAURANCE H. MILLS, President
*Mills & Sons, Inc., builders*
*Chicago*

NICHOLAS F. MOLNAR, builder
*Cleveland*
*Ohio*

DAVID S. MILLER, President
*Producers' Council*
*Washington, D. C.*

MRS. MAXINE LIVINGSTON
*Family Home Editor*
*Parents Magazine*
*New York City*

*On windy spring days . . . nothing stops entrance drafts like a revolving door . . .*

**in the Architect's Building, New York, Architects Morris & O'Connor made draft control easy by using Revolving Doors!**

The Architects Building, 101 Park Ave., rises in majestic beauty 22 stories above New York's bustling business district. Soon after its completion, drafts through the entrances became a serious problem. If the swing doors were replaced, Architects Morris & O'Connor wanted to know, would revolving doors control the drafts? Would they handle the big traffic volume safely and smoothly? Would they improve lobby conditions? They would and they did! Now serving this busy business center are two revolving doors by International Van Kannel. The one shown above is an all-glass special design of hollow stainless steel. This experience is in no way unusual, for in the past 20 years, over 50 per cent of all revolving doors sold have replaced swing door entrances. If yours is an entrance problem, International's engineers will be glad to cooperate in working out an economical, "sure-fire" solution.

**REVOLVING INTERNATIONAL VAN KANNEL DOORS**

**DIVISION OF INTERNATIONAL STEEL CO., 1606 EDGAR ST., EVANSVILLE, IND.**

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**1.** Wherever moisture is condensed because of concrete or masonry.

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**3.** Wood used in or near the ground open to attack by termites.

**4.** Where steam and vapor from industrial processes are prevalent.

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**6.** Wood exposed to moisture in artificially humidified buildings.

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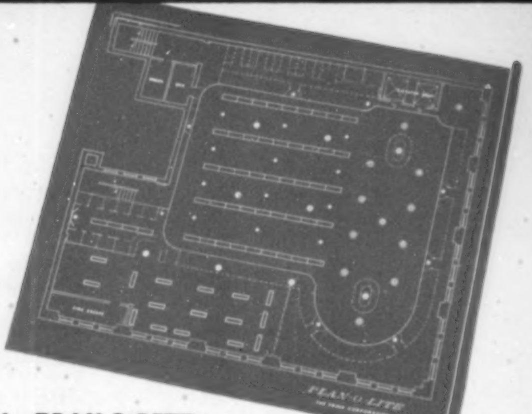
| 141 Milk Street | 420 Lexington Ave. | 831 Southern Bldg. | 719 Graham Bldg. | 112 West 9th St. | 604 Mission Street |

Men's Clothing Dept., Greenfield's Store, St. Louis, Mo. Five continuous rows of nine fixtures each are recessed in the 11'2" ceiling to produce approximately 40 foot candles maintained. L-I-N-O-L-I-T-E Series 17 two lamp troffers with curved Holophane Controlens (17-248) were used for this installation. Architect: Meyer Loomstein.



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FRINK
SINCE 1857

**THE FRINK CORPORATION**
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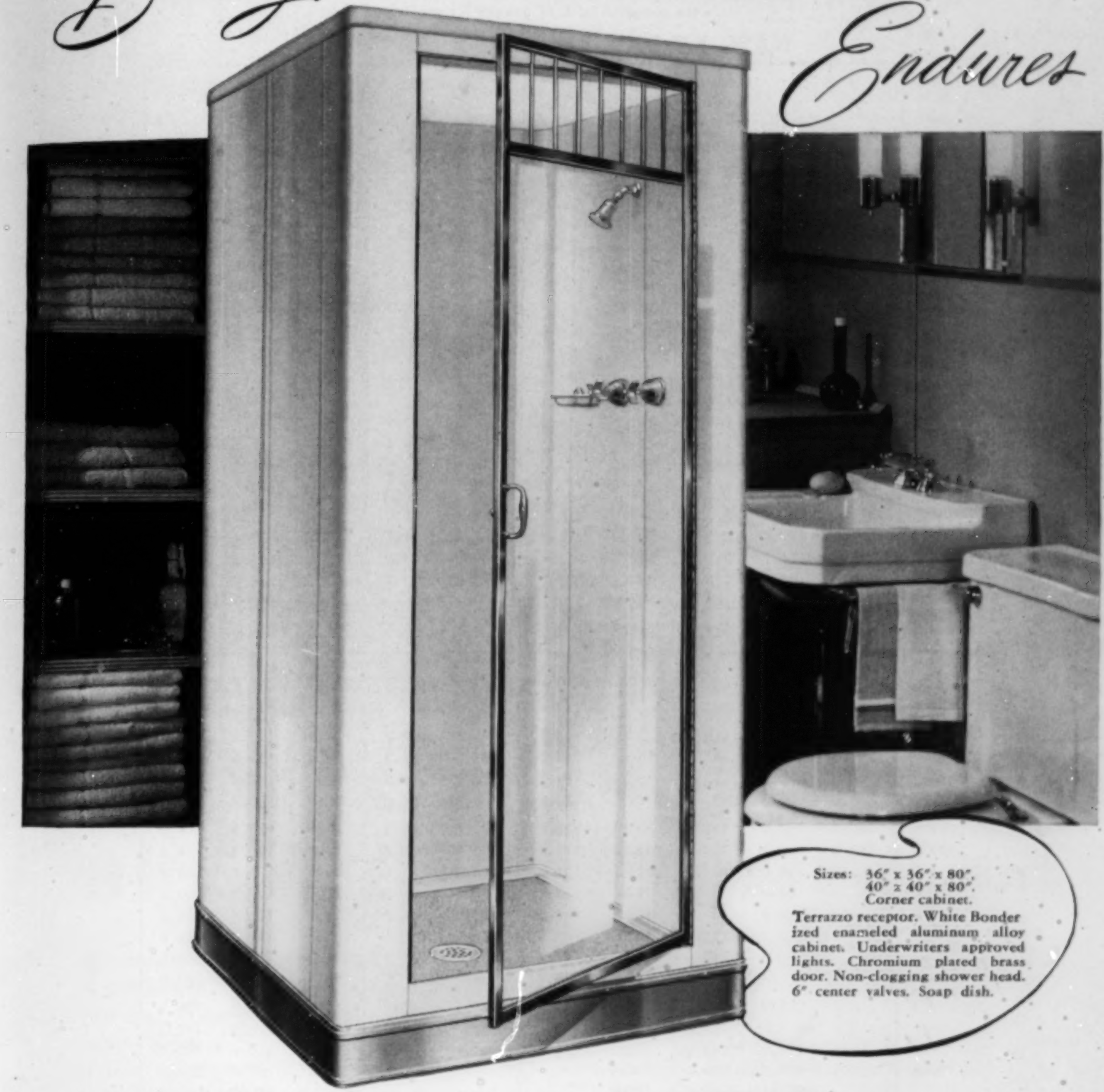
*Beauty* IN THE BATHROOM THAT *Endures*



Sizes: 36" x 36" x 80",
40" x 40" x 80".
Corner cabinet.
Terrazzo receptor. White Bonderized enameled aluminum alloy cabinet. Underwriters approved lights. Chromium plated brass door. Non-clogging shower head. 6" center valves. Soap dish.

TODAY, in their bathrooms, new home owners want the luxury of modern design in shower cabinets combined with utility and real durability. Now Tiletone, and only Tiletone, offers a shower cabinet that really graces any bathroom no matter how luxurious. It is Model 75. Here is a shower cabinet that is constructed to hold up better—is durable. Made of aluminum alloy, it is non-rusting and is protected by a Bonderized baked enamel finish. Model 75 has a new improved terrazzo receptor—shoulder height shower head, is lighter, yet rigid . . . solid! So it's easier to handle, easier to install.

**MODEL 75 TILETONE** *Shower Cabinet*

TILETONE COMPANY • 2323 WAYNE AVENUE • CHICAGO 14, ILLINOIS

# CONSTRUCTION COST INDEXES — Labor and Materials

**United States average 1926—1929 = 100**

**Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data compiled by E. H. Boeckh & Associates, Inc.**

| | NEW YORK | | | | | ATLANTA | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Residential Brick | Residential Frame | Apts., Hotels, Office Bldgs. Brick and Concr. | Commercial and Factory Buildings Brick and Concr. | Commercial and Factory Buildings Brick and Steel | Residential Brick | Residential Frame | Apts., Hotels, Office Bldgs. Brick and Concr. | Commercial and Factory Buildings Brick and Concr. | Commercial and Factory Buildings Brick and Steel |
| 1920 | 136.1 | 136.9 | 123.3 | 123.6 | 122.6 | 122.8 | 122.9 | 108.6 | 109.8 | 105.7 |
| 1925 | 121.5 | 122.8 | 111.4 | 113.3 | 110.3 | 86.4 | 85.0 | 88.6 | 92.5 | 83.4 |
| 1930 | 127.0 | 126.7 | 124.1 | 128.0 | 123.6 | 82.1 | 80.9 | 84.5 | 86.1 | 83.6 |
| 1935 | 93.8 | 91.3 | 104.7 | 108.5 | 105.5 | 72.3 | 67.9 | 84.0 | 87.1 | 85.1 |
| 1939 | 123.5 | 122.4 | 130.7 | 133.4 | 130.1 | 86.3 | 83.1 | 95.1 | 97.4 | 94.7 |
| 1940 | 126.3 | 125.1 | 132.2 | 135.1 | 131.4 | 91.0 | 89.0 | 96.9 | 98.5 | 97.5 |
| 1941 | 134.5 | 135.1 | 135.1 | 137.2 | 134.5 | 97.5 | 96.1 | 99.9 | 101.4 | 100.8 |
| 1942 | 139.1 | 140.7 | 137.9 | 139.3 | 137.1 | 102.8 | 102.5 | 104.4 | 104.9 | 105.1 |
| 1943 | 142.5 | 144.5 | 140.2 | 141.7 | 139.0 | 109.2 | 109.8 | 108.5 | 108.1 | 108.7 |
| 1944 | 153.1 | 154.3 | 149.6 | 152.6 | 149.6 | 123.2 | 124.5 | 117.3 | 117.2 | 118.2 |
| 1945 | 160.5 | 161.7 | 156.3 | 158.0 | 155.4 | 132.1 | 133.9 | 123.2 | 122.8 | 123.3 |
| 1946 | 181.8 | 182.4 | 177.2 | 179.0 | 174.8 | 148.1 | 149.2 | 136.8 | 136.4 | 135.1 |
| Oct. 1947 | 228.7 | 231.0 | 218.5 | 217.4 | 213.8 | 186.9 | 191.0 | 165.0 | 163.0 | 165.8 |
| Nov. 1947 | 229.1 | 231.4 | 219.0 | 217.8 | 214.2 | 187.3 | 191.4 | 165.5 | 163.4 | 166.2 |
| Dec. 1947 | 231.3 | 234.1 | 219.8 | 218.4 | 215.1 | 189.3 | 194.0 | 166.7 | 164.5 | 169.4 |
| Jan. 1948 | 238.8 | 242.7 | 225.1 | 224.6 | 220.0 | 191.9 | 196.7 | 168.6 | 166.7 | 171.4 |
| | *% increase over 1939* | | | | | *% increase over 1939* | | | | |
| **Jan. 1948** | **93.4** | **98.2** | **72.2** | **68.3** | **69.0** | **122.6** | **136.6** | **77.2** | **72.1** | **81.0** |

| | ST. LOUIS | | | | | SAN FRANCISCO | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Residential Brick | Residential Frame | Apts., Hotels, Office Bldgs. Brick and Concr. | Commercial and Factory Buildings Brick and Concr. | Commercial and Factory Buildings Brick and Steel | Residential Brick | Residential Frame | Apts., Hotels, Office Bldgs. Brick and Concr. | Commercial and Factory Buildings Brick and Concr. | Commercial and Factory Buildings Brick and Steel |
| 1920 | 118.1 | 121.1 | 112.1 | 110.7 | 113.1 | 108.8 | 107.5 | 115.2 | 115.1 | 122.1 |
| 1925 | 118.6 | 118.4 | 116.3 | 118.1 | 114.4 | 91.0 | 86.5 | 99.5 | 102.1 | 98.0 |
| 1930 | 108.9 | 108.3 | 112.4 | 115.3 | 111.3 | 90.8 | 86.8 | 100.4 | 104.9 | 100.4 |
| 1935 | 95.1 | 90.1 | 104.1 | 108.3 | 105.4 | 89.5 | 84.5 | 96.4 | 103.7 | 99.7 |
| 1939 | 110.2 | 107.0 | 118.7 | 119.8 | 119.0 | 105.6 | 99.3 | 117.4 | 121.9 | 116.5 |
| 1940 | 112.6 | 110.1 | 119.3 | 120.3 | 119.4 | 106.4 | 101.2 | 116.3 | 120.1 | 115.5 |
| 1941 | 118.8 | 118.0 | 121.2 | 121.7 | 122.2 | 116.3 | 112.9 | 120.5 | 123.4 | 124.3 |
| 1942 | 124.5 | 123.3 | 126.9 | 128.6 | 126.9 | 123.6 | 120.1 | 127.5 | 129.3 | 130.8 |
| 1943 | 128.2 | 126.4 | 131.2 | 133.3 | 130.3 | 131.3 | 127.7 | 133.2 | 136.6 | 136.3 |
| 1944 | 138.4 | 138.4 | 135.7 | 136.7 | 136.6 | 139.4 | 137.1 | 139.4 | 142.0 | 142.4 |
| 1945 | 152.8 | 152.3 | 146.2 | 148.5 | 145.6 | 146.2 | 144.3 | 144.5 | 146.8 | 147.9 |
| 1946 | 167.1 | 167.4 | 159.1 | 161.1 | 158.1 | 159.7 | 157.5 | 157.9 | 159.3 | 160.0 |
| Oct. 1947 | 210.7 | 213.0 | 192.2 | 191.5 | 193.4 | 207.1 | 206.2 | 195.4 | 199.6 | 198.9 |
| Nov. 1947 | 212.1 | 214.0 | 193.6 | 192.5 | 194.5 | 207.7 | 206.8 | 196.2 | 200.2 | 199.5 |
| Dec. 1947 | 217.5 | 220.9 | 194.9 | 193.4 | 196.3 | 209.7 | 209.3 | 196.8 | 200.6 | 200.2 |
| Jan. 1948 | 220.6 | 224.0 | 198.1 | 200.9 | 199.6 | 212.7 | 210.5 | 199.8 | 206.8 | 202.9 |
| | *% increase over 1939* | | | | | *% increase over 1939* | | | | |
| **Jan. 1948** | **100.0** | **109.2** | **66.8** | **67.7** | **67.7** | **101.6** | **102.1** | **70.1** | **69.7** | **74.1** |

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

*In Canada too . . .*

# THEY RAISE THE ROOF FOR MORE OFFICE SPACE

In adding a third floor to its executive office building in Toronto, the Abitibi Power & Paper Company, Limited, had also to provide a new roof.

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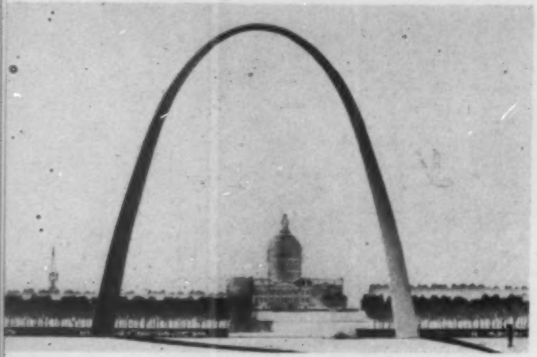
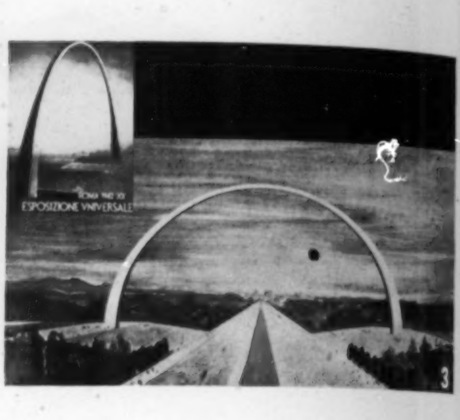
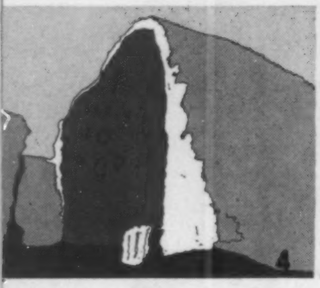
*New Toronto, Ont.*

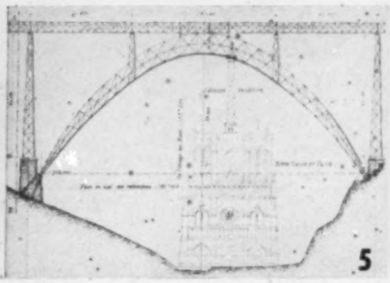
# AN ARCH IS AN ARCH IS $y^2 = 2px$ (SOMETIMES)

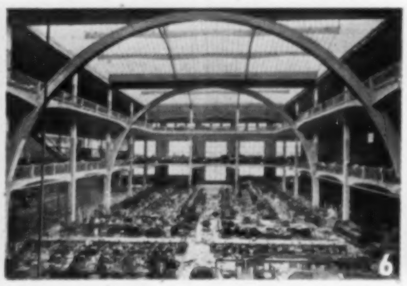


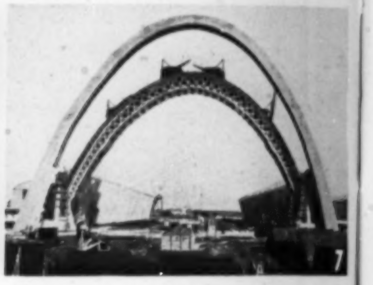


*A unanimous jury praised the beauty of this 590-ft. Jefferson arch (1) by the Saarinens, symbolising a gateway to the West (2). The chairman of a Fine Arts Commission made newspaper implications of plagiarism from this forgotten arch (3) for Mussolini, which was never executed. Mussolini's arch, when seen fairly head-on, instead of sideways as the chairman presented it (insert) turned out to be round, spreading; not tall nor parabolic. Neither arch wore "Roman Classical" school tie preferred by chairman*

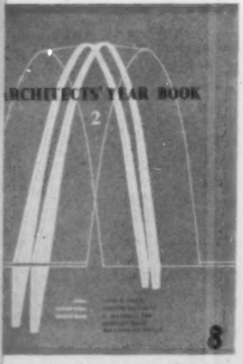


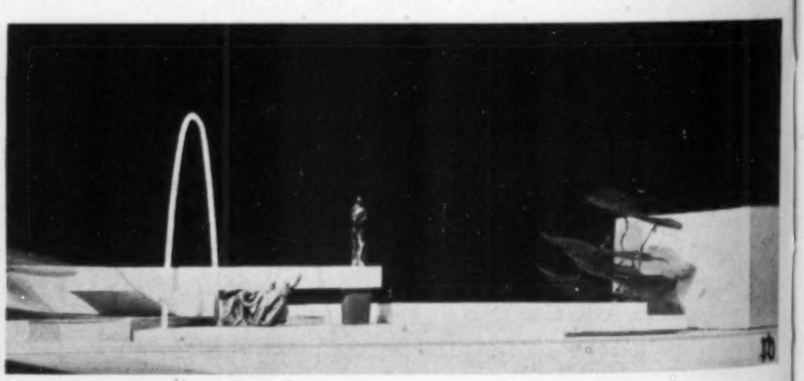






*Thousands of years before Mussolini, parabolic arches were preferred form of world's master vault builders in Persia, who were able, by 220–640 A.D., to erect this vast parabolic-vaulted palace at Ctesiphon (4). Worn thin by erosion, mud-brick ruin still survives by unique stability of form. Same reasoning motivated engineer Eiffel in his 450-ft. high Garrabit aqueduct back in 1884 (5). Continuity of steel, concrete, made possible bold new attenuation: 1919 Perret factory, round (6); famous hangars, Orly (7), parabolic, built 1918*

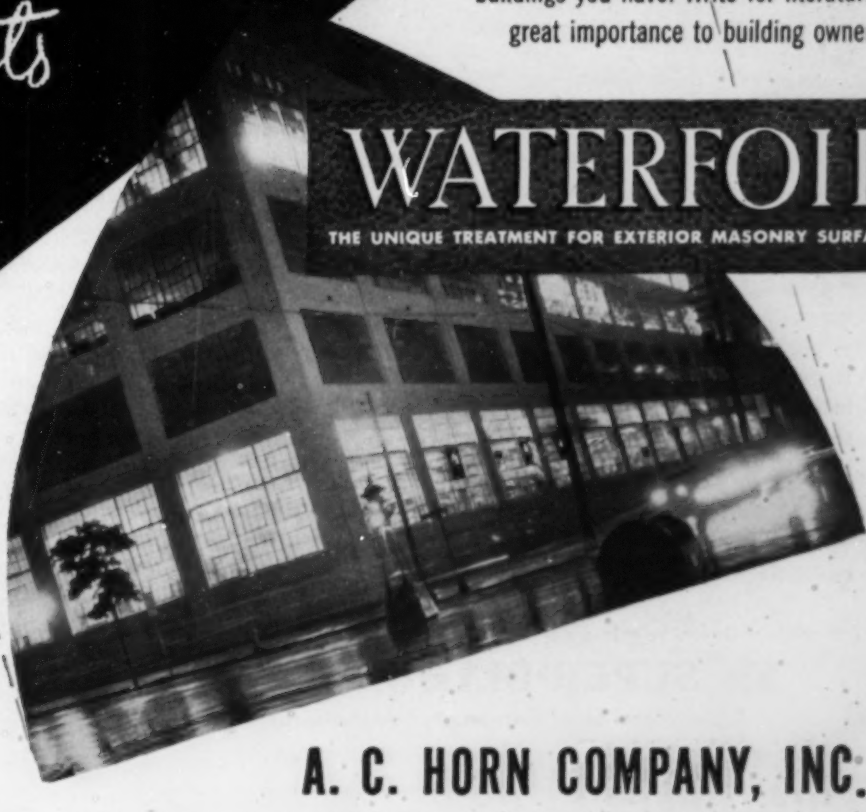




Credits: 2. Ewing Galloway 3. Herald-Tribune 4. Asia Institute 8. Architects' Year Book 10. Ladislav Rado

*By 1948, monumental thin arches were new enough to be exciting, yet familiar enough to symbolize architecture in yearbooks (8); were commonplace in vast structures; had been employed by every Western faith to stimulate worship (9). In no sense a property of fascists, parabolic thin arch was previously used, 1938, by Ladislav Rado (now of New York) in prize-winning design (10) to commemorate Thomas Masaryk. This monument, likewise unbuilt, now serves as sad reminder of the once Jeffersonian Czechoslovak Republic*

(*Continued on page 30*)



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- your plant and products for possible applications.

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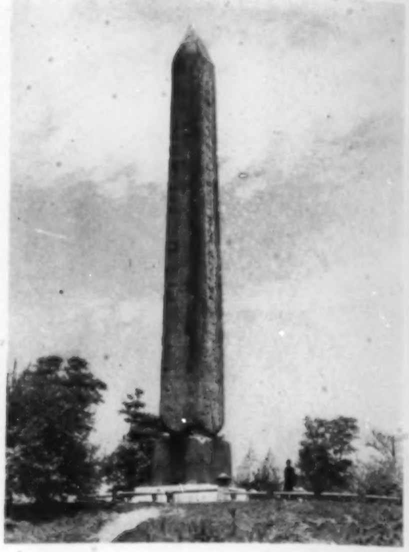


Ewing Galloway Photos

## AN ARCH IS AN ARCH

(*Continued from page 28*)

On February 26, a New York morning newspaper carried a letter referring to the award of $40,000 for the Jefferson Memorial competition to a team headed by Eero Saarinen (page 97). It was from Gilmore D. Clark, chairman of the national Fine Arts Commission, said "unfortunately the design . . is not new; it (the big arch) was the central element for . . . Mussolini . . . to celebrate twenty years of Fascism."

Dean Wurster, jury chairman, retorted that "there had probably been hundreds of arches like that" (page 97); Eero Saarinen, denying previous knowledge of Mussolini's arch, said "it was just a basic form"; asked if the Washington monument should be razed because Cleopatra's needle had been built by slaves.

Others asked how Clark would like to see his own Brooklyn memorial denounced for at least equal similarity to Nazi buildings, or his favored free classical style denounced as Communist because it is the official style in Russia.

ARCHITECTURAL

RECORD

## PRECEDENTS, PROTOTYPES AND PLAGIARISM

Architecture has amassed an unprecedented amount of precedent. If one cares to probe into the past, he probably can find a precedent or a prototype for the form of each and every part of any structure. Architectural progress has been evolutionary and each improvement in form or detail has been, for the most part, a modification or mutation of a previous development. Our architectural vocabulary is based on the permutations and combinations of geometric forms, all well known for centuries — straight lines and curves, surfaces and areas, solids and voids. The art of architecture is therefore necessarily eclectic, i.e. based on making free choice of forms — the architect choosing and combining them to suit his purposes. There is nothing new in the forms themselves — the only novelty or originality is in the way in which those forms are combined, arranged and used. (Eclectic is not used here in the narrower sense of choosing a "period style.")

It is therefore beside the point to criticize or cast aspersions on the use of a particular form just because it, or a similar form, has been used before for a particular purpose. Such natural and traditional use of precedent is inherent in architectural development and it should not be implied that plagiarism is involved. If every design had to be judged as good or bad on the basis of having or not having precedents or prototypes, we would have no good designs. It is not surprising either to find that two minds, when facing similar problems, should arrive by analysis and reasoning at similar solutions, similar design forms. And no plagiarism is involved in such cases though the designs may stem from the same prototypes.

Eclecticism in its broad sense should not be condemned; it is, in fact, essential to the progress of good design. The quality of the eclecticism is what counts. The skill and judgment of the architect in choosing the form that is most appropriate to his purposes, whether materialistic or esthetic, merit our praise or scorn. The question is — not has he used a form that has been used before (for what form hasn't?) — but has he chosen a form or combination of forms, materials, colors and textures best suited to both the "practical" and the "esthetic" implications of his problem? And, has he arrived at a solution that indicates an improvement on such precedent as there may be? Does the design he has evolved (for he must evolve it out of forms already known) constitute a more fitting or more pleasing expression of the purposes of his structure? "More fitting" can be judged on many counts — economy, durability, efficiency, functioning, visual expression and current esthetic standards, fads or fancies.

Eclecticism becomes plagiarism only when the choice of form or design is in the nature of a "cold crib," the copying of prototypes without any significant contribution, modification, or improvement on the part of the designer. Plagiarism is unintelligent eclecticism — originality is imaginative eclecticism. Let us have no fear of eclecticism; it should carry no stigma. And let us not confuse plagiarism with the intelligent, imaginative use of design precedents and prototypes.

Kenneth K. Stowell
EDITOR

# JEFFERSON MEMORIAL COMPETITION WINNERS

***Photographs on these two pages show final winning design of Saarinen, Saarinen and Associates***

*When Dean Wurster handed the $40,000 first-prize check to Eero Saarinen and his associates, it was done with congratulations on "a work of architectural genius." There was no denying the warmth of the occasion.*

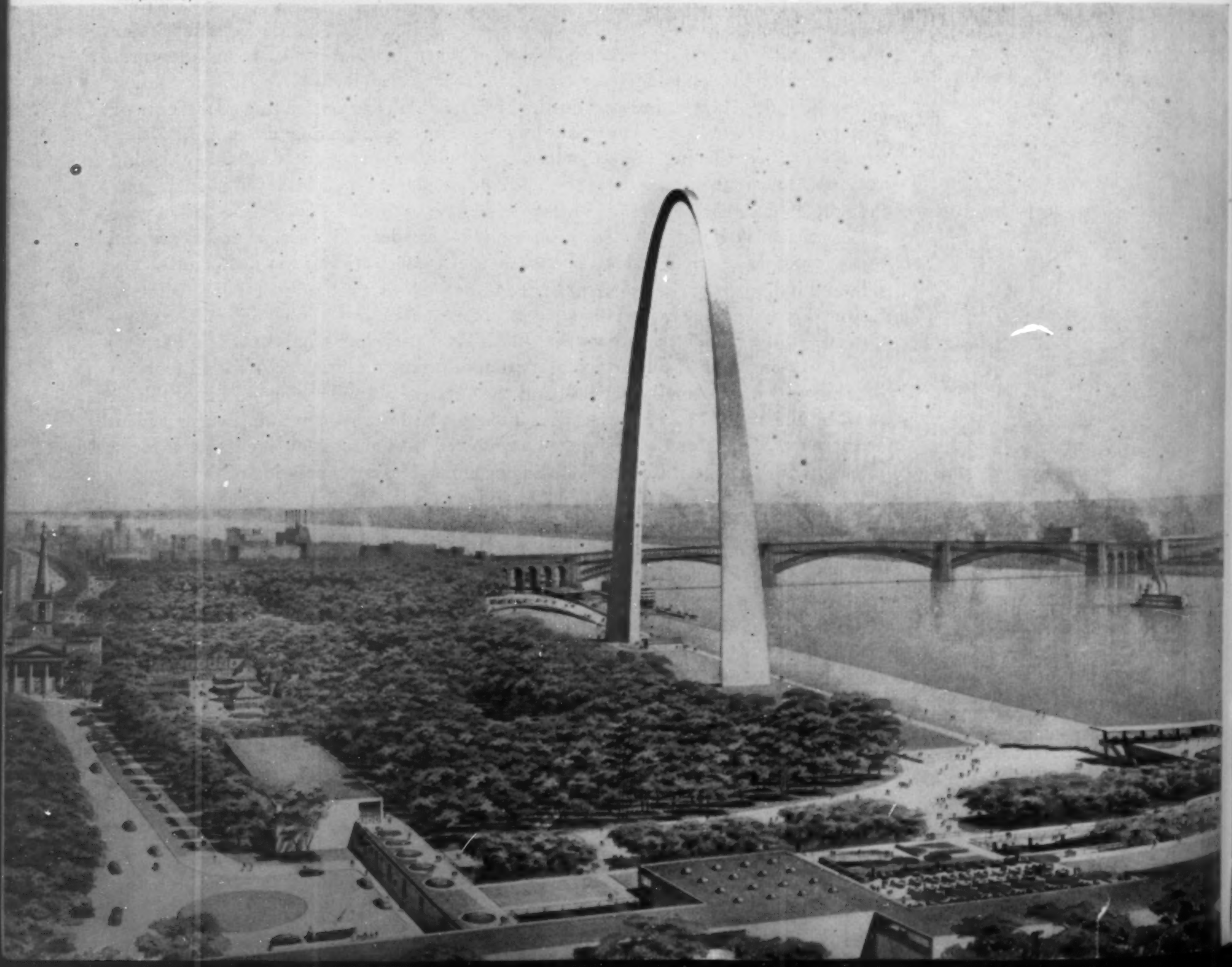
*This warmth had relatively little to do with the size of the check — even though the total of $50,000 to the winners, counting in the $10,000 received at the end of the first stage, was a record amount for architects in competition. The warmth had to do mainly with the sense of an arduous 15-year project brought to a preeminently successful conclusion.*

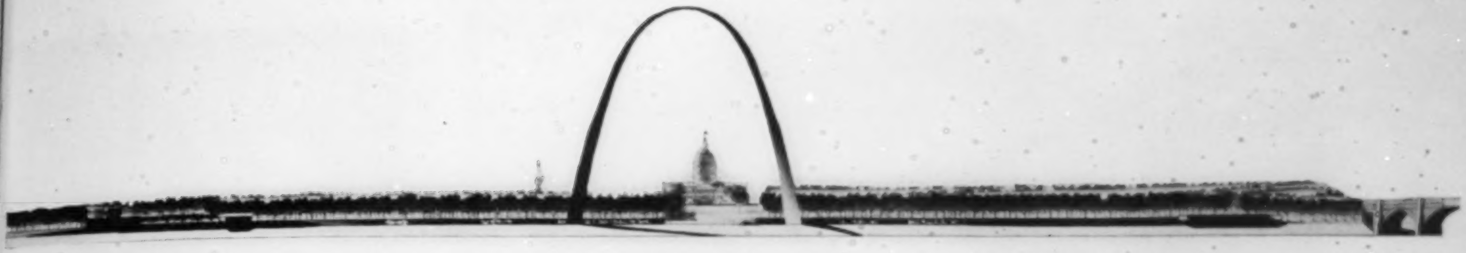
*The jury had been unanimous on the very first ballot, and with general enthusiasm.*

*The other competitors were prompt and vocal in their praise. It was easier to lose first place when the winner had so obviously been inspired.*

*Still other factors contributed to general good feeling. Second place had gone to a group of advanced students from the University of Illinois — giving them $30,000 with which to complete their education and making it seem that competitions were a means of rewarding ideas independently of reputation. It was a happy day, and not only for the St. Louis businessmen who had invested a cool quarter of a million. It remains so in memory, beyond reach of malice. Consensus was that the whole profession should press for final construction, undiminished.* D.H.

All photos by W. C. Runder unless otherwise noted





The Jefferson Memorial competition took place as the culmination of a 15-year effort. In 1933 there was formed, by the citizens of St. Louis and neighboring territory, the Jefferson National Expansion Memorial Association, known more simply as "Jenniemay."

It sponsored the creation in 1934 of a Congressional Committee of somewhat similar title, and passage by Congress in 1935 of the Historic Sites and Buildings Act. The City of St. Louis voted a $7,500,000 bond issue the same year in aid of the project, and the President by executive order designated the Park Service as Executive Agency to acquire and develop the site of Old St. Louis as an Historic Site. The President allocated $6,750,000 of government funds for the purpose, to be matched by $2,250,000 from the city.

Between 1936 and 1940 the Park Service made its property acquisitions and prepared legally for demolition of existing buildings, carried through 1940–41. The war interrupted further activity until 1947.

In 1947 public-spirited citizens contributed $225,000 to the Association to conduct the competition for a memorial by architects and practitioners of allied arts.

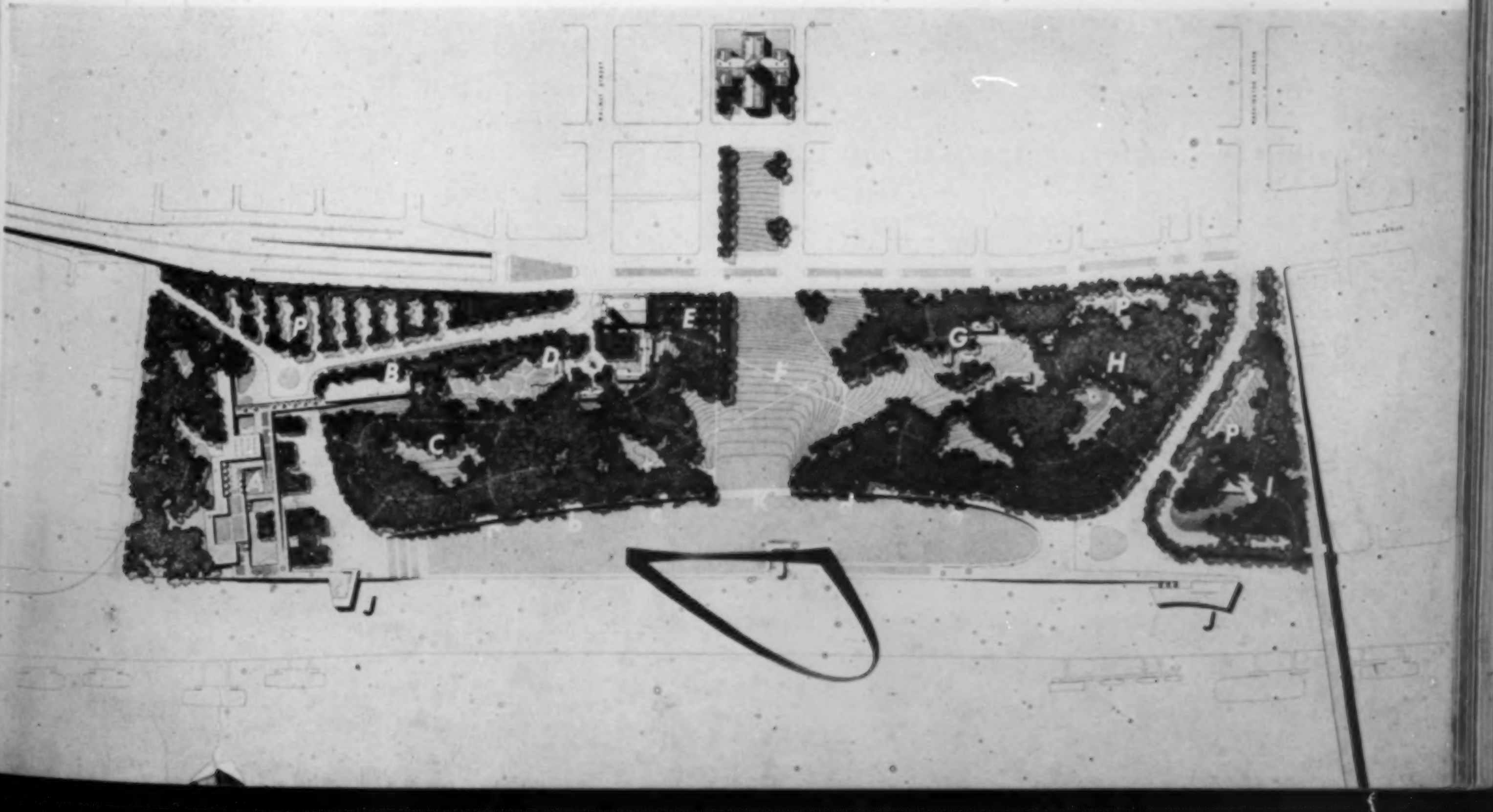
In the first, more general, phase there was far more emphasis on a "living memorial" and broader reliance on cooperation from institutions such as railroads, neighboring communities. It called for several groups having to do with (a) an architectural memorial or memorials to Jefferson; dealing (b) with preservation of the site of Old St. Louis — landscaping, provision of an open-air campfire theater, reerection or reproduction of a few typical old buildings, provision of a Museum interpreting the Westward Movement; (c) a living memorial to Jefferson's "vision of greater opportunities for men of all races and creeds"; (d) recreational facilities, both sides of the river; and (e) parking facilities, access, relocation of railroads, placement of an interstate highway.

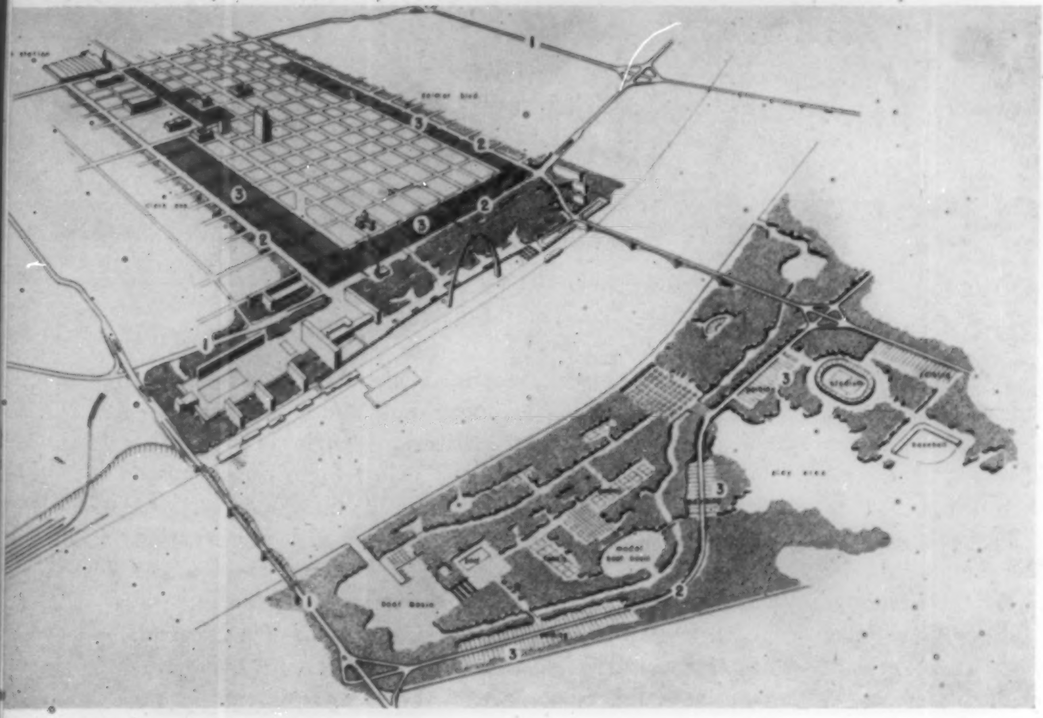
The second phase limited the area to that *between* the levee and city; eliminated the "living memorial"; required that the architectural memorial be "essentially non-functional"; placed numerous restrictions; anticipated easy Park Service maintenance, step-wise completion. Most competitors were actually obliged to "start all over," to meet the revised requirements.

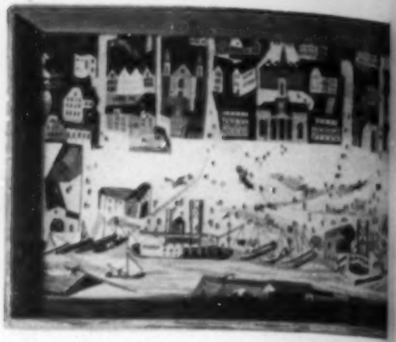
P. PARKING
A. THE MUSEUM
  Terrace and cafe above
B. ARCHITECTURAL
C. THE MEADOW
D. CATHEDRAL SQUARE

E. THE GROVE
F. THE MALL
G. FRONTIER VILLAGE
H. CAMPFIRE THEATER
I. TEA PAVILION
J. RESTAURANT

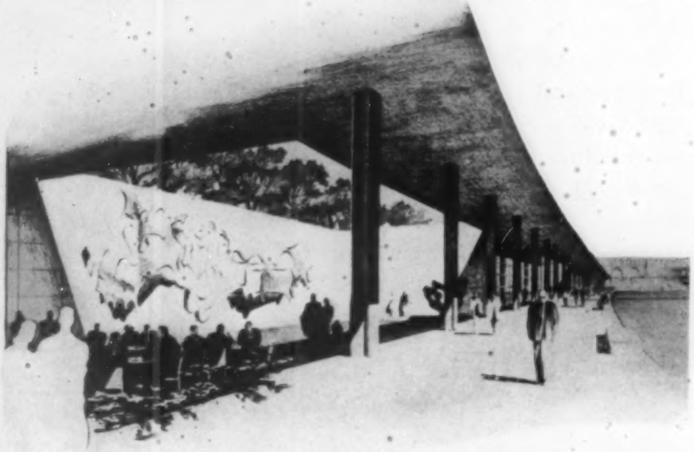
K. HISTORIC ARCADE
  a. Louisiana Purchase
  b. The Pioneer Movement
  c. Life on the Mississippi
  d. Trapping and Fur Trading
  e. Lewis and Clark Expedition







*FIRST STAGE OF DESIGN shows arch of square section; character of allied arts; across-the-river recreational development; more extensive building (Final design is shown on the two preceding pages of this story)*



"This entry placed in the First Stage, for it contains intrinsically the very features aspired to by the Program . . . a memorial, a park, balanced harmony and fine grouping of buildings. The success of the plan does not depend upon the carrying out of a suggested collaboration of communities on the eastern bank of the Mississippi though it suggests to the full the advantages of such a possibility.

"The Second Stage resulted in an enriched and improved plan with no diminution of any of its initial excellencies. It tends to have the inevitable quality of a right solution. The Monument suggests the historic past

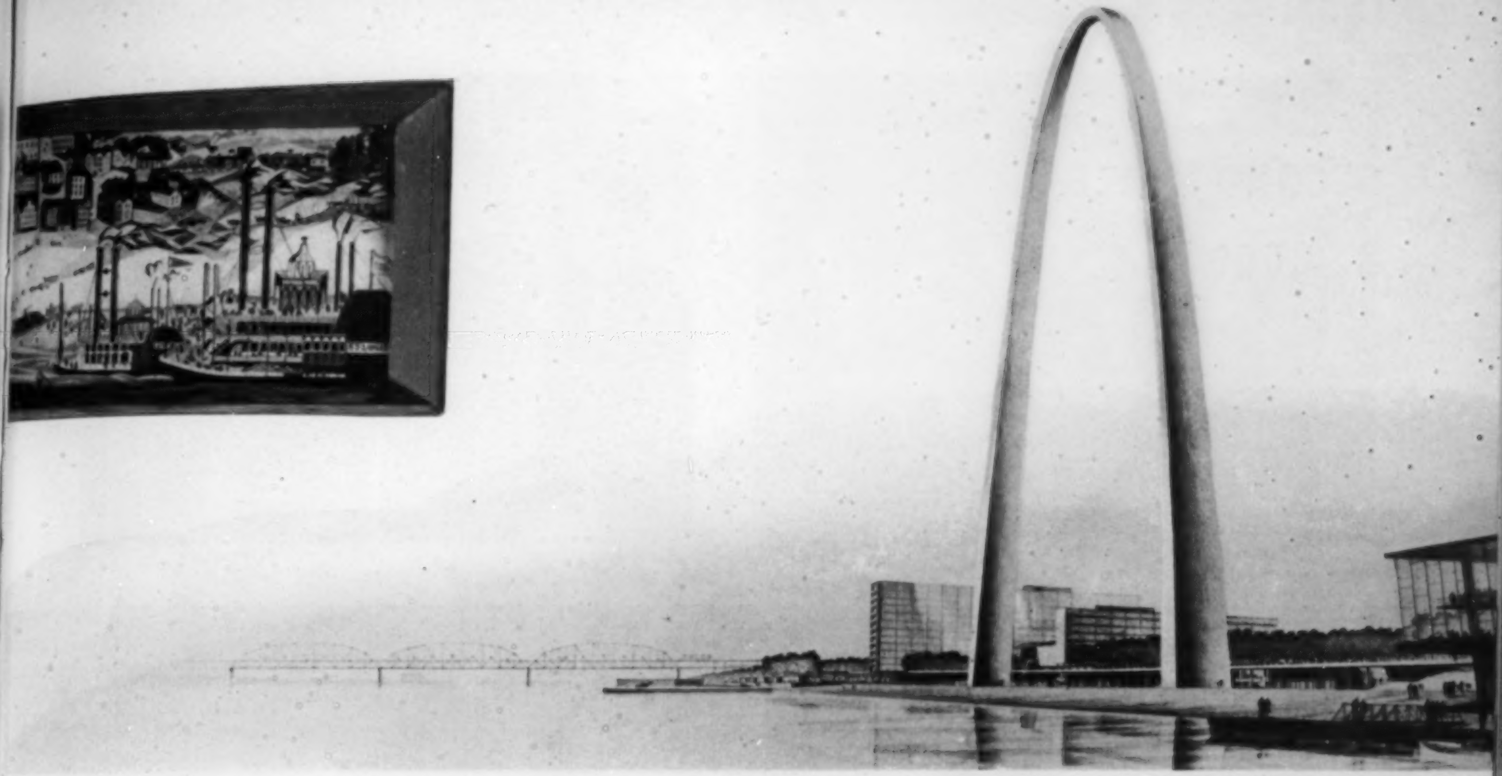
W. C. Runder Photos

## WINNERS OF FIRST PRIZE ($40,000)

*Saarinen, Saarinen and Associates, Architects. From left to right: J. Henderson Barr, associate designer; Alexander Girard, painter; Dan Kiley, landscape architect; Lily Sann Saarinen, sculptress; Eero Saarinen, designer; Dean William W. Wurster, chairman of the jury of award*

*Across-page: the award dinner. Members of jury, three governors, prominent citizens on dais; competitors seated at long table immediately forward; part of audience in foreground*

*Jury members were: S. Herbert Hare, F.A.S.L.A., Kansas City; Fiske Kimball, F.A.I.A., Philadelphia; Louis LaBeaume, F.A.I.A., St. Louis; Charles Nagel, Jr., A.I.A., Brooklyn; Richard J. Neutra, A.I.A., Los Angeles; Roland A. Wank, A.I.A., New York; William W. Wurster, A.I.A., Cambridge, Mass., chairman*



of St. Louis as the Gateway to the West. It is large in scale, yet does not dwarf other structures, and by its very form is sympathetic with the Courthouse dome. The use of the Manuel Lisa Warehouse as an entrance to the Memorial is a peculiarly happy instance of the brilliant effect to be gained by the occasional close juxtaposition of old and new.

"The park gives promise of shade in the warm season. The treatment of roadways is an effective guard against traffic intrusion. The approach to the Old Cathedral and its adjacent dependencies insure a proper setting for that dignified structure. The treatment of sculpture commemorating historical episodes is particularly engaging as it gradually unfolds along the levee edge. A frontier village in the wooded area recalls the flavor of the time of the Western Expansion. Restaurants on either end afford vistas of the Memorial area and the Mississippi. Feature by feature a masterful plan reaches desired fulfillment.

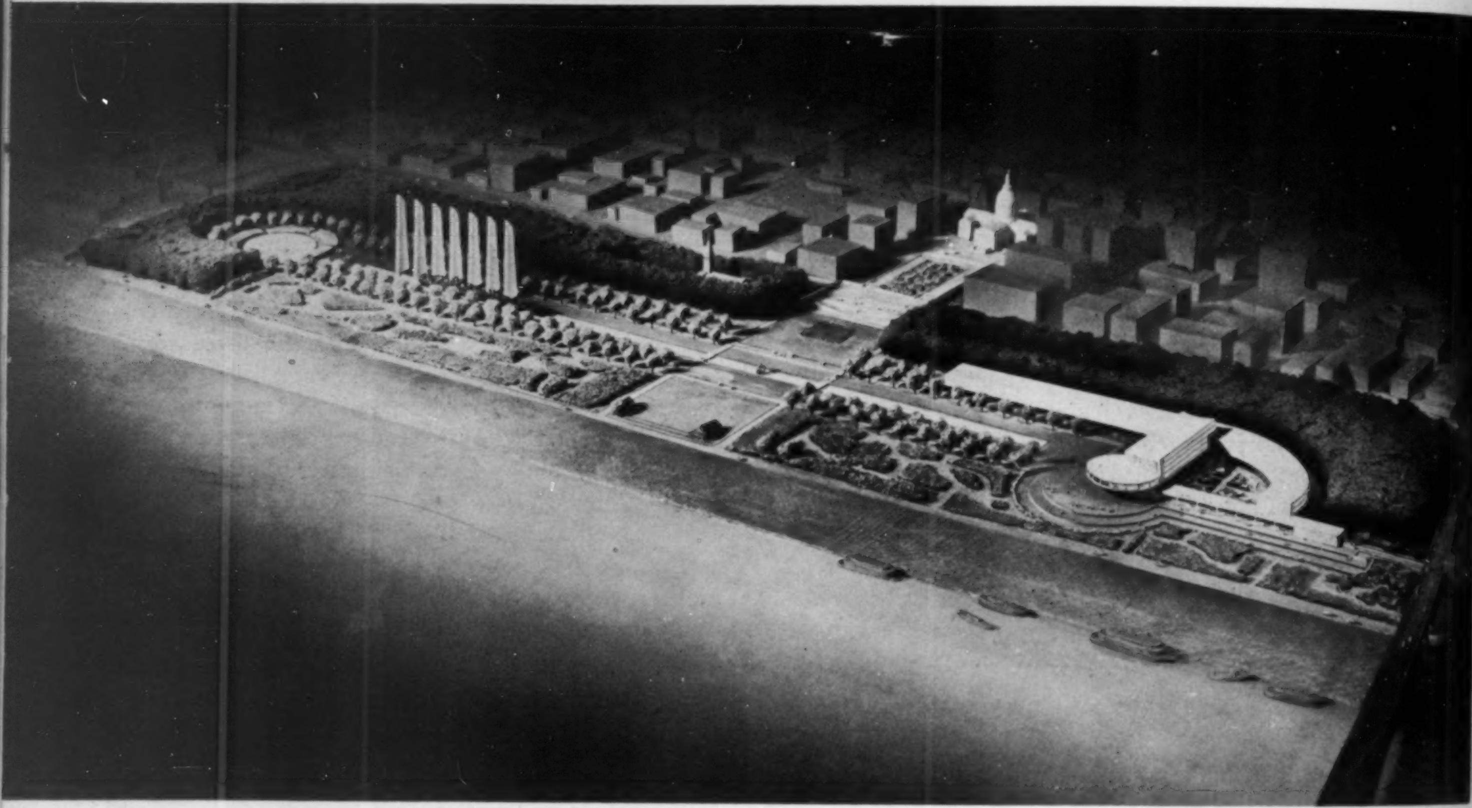
"The entire concept, full of exciting possibilities for actual achievement, is a work of genius, and the memorial structure is of that high order which will rank it among the nation's greatest monuments."

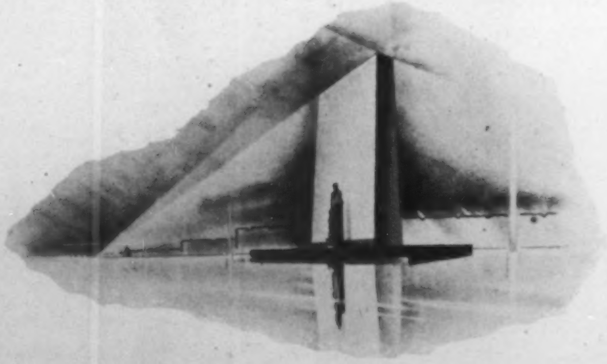
— *From Report of the Jury*

Eugene Taylor

# SECOND PRIZE: $20,000

*Left to right: Gordon A. Phillips, William Eng, both architects; George N. Foster, painter, and, again, Dean W. W. Wurster*

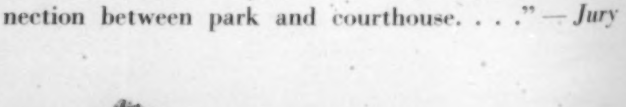




*Pylon, from first stage, is typical detail by competitors*

"SIMPLE and broad in conception, this design has an uncluttered terrace with the memorial gaining strength from the repeat of shafts commemorating historical events. A band of thickly planted trees gives respite from the traffic and city noise." — Dean Wurster.

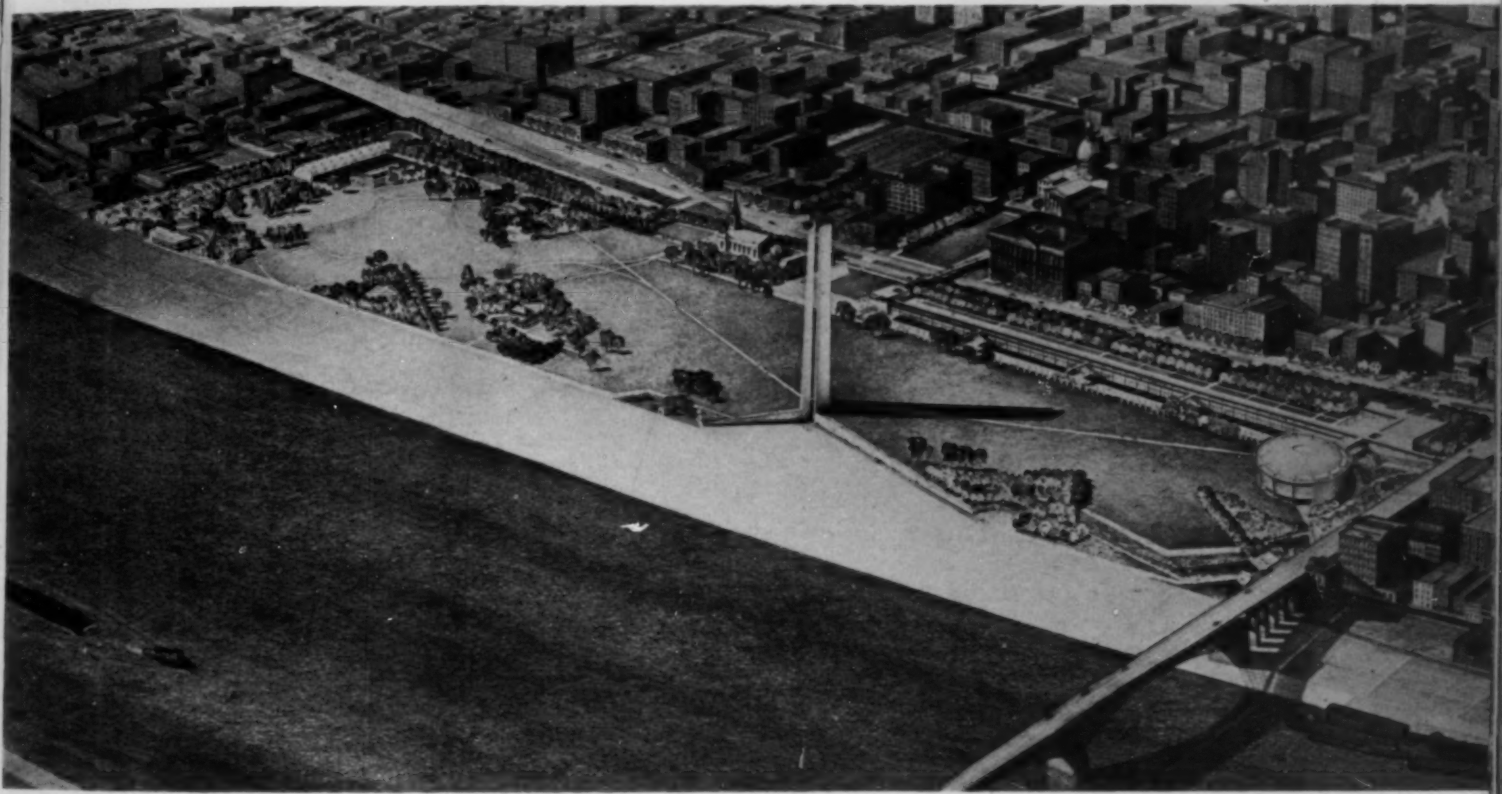
"Emphasizes the natural fall of the site by placing the long museum building and the restaurant with its panoramic view on highest ground . . . immediately accessible from the city center . . . . creates direct connection between park and courthouse. . . ." — *Jury*



# THIRD PRIZE:
# $10,000

*Equal team-mates: Ralph J. Menconi, sculptor; George S. Lewis, Caleb Hornbostel, William N. Breger, architects*

W. C. Runder Photos

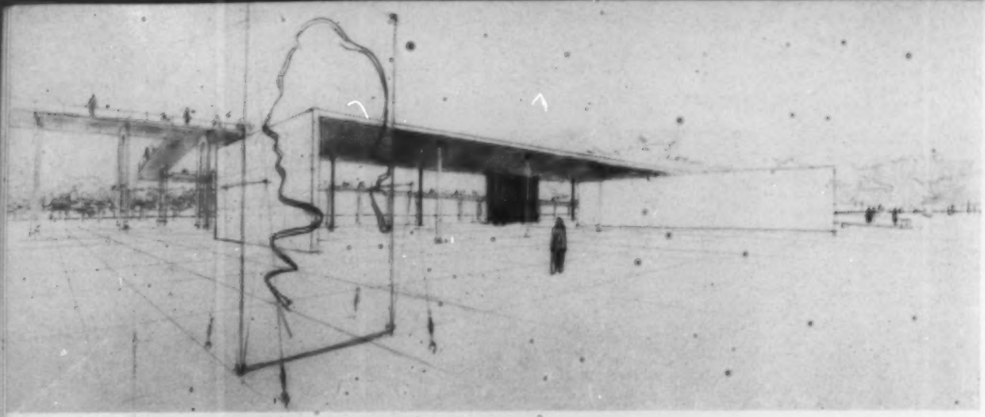


A SINGLE great idea carried through with conviction in the form of a terrace earned a place in the first group of five.

"In the development of the second stage a monument was introduced which has beauty and a stately symbolism. This symbolism is to emphasize that through this one city were funneled the countless settlers to spread through the West. The terrace museum is retained on the high ground and an intimate grouping of old buildings developed at the levee. The picnic and restaurant areas at each end all contribute to the human scale which would make it a pleasant place in which to relax." — *Report of the jury*

"The historical structures find themselves as of old close by the levee." — *Remarks of Dean Wurster*

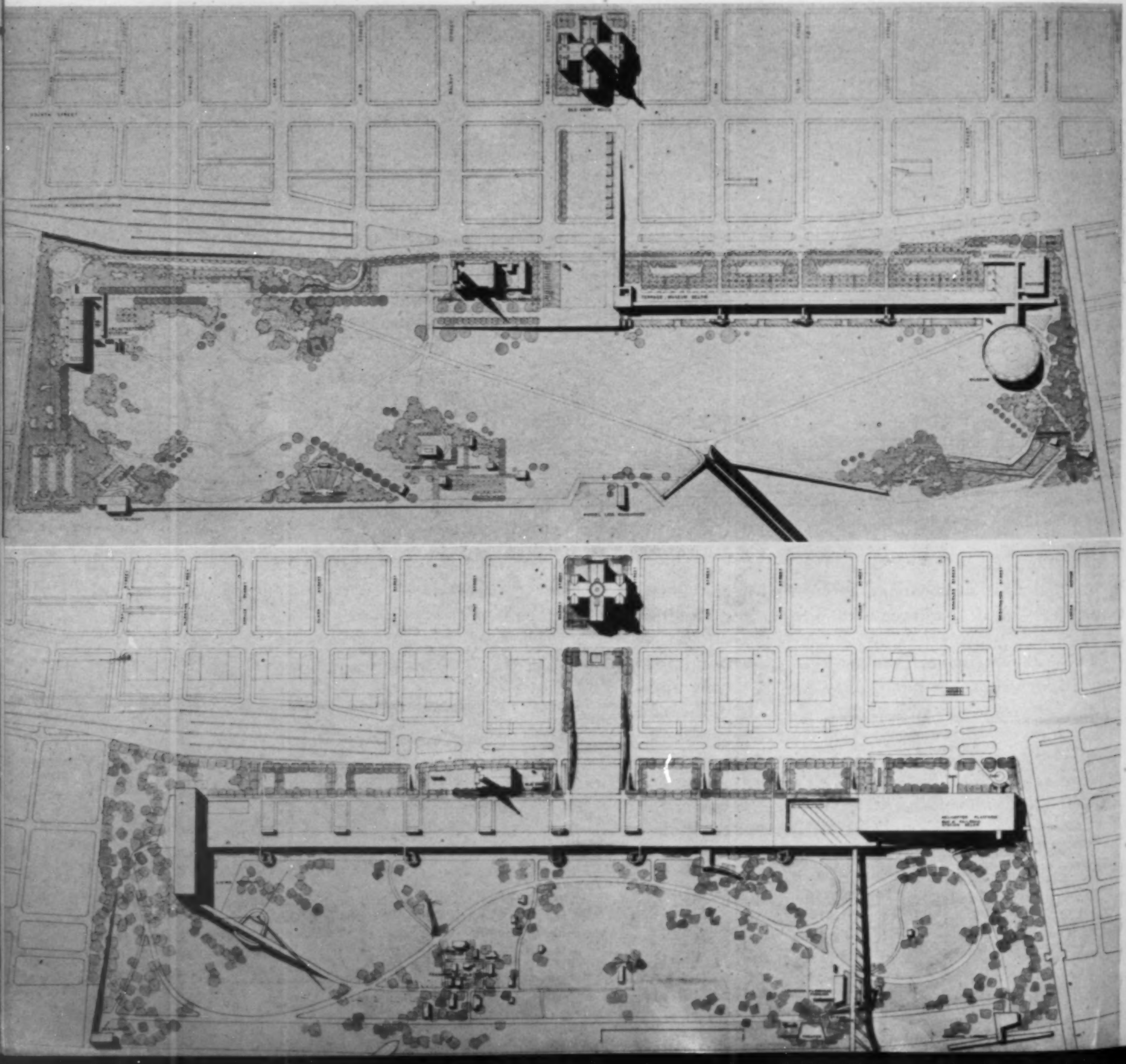
*Other equal team-mates: top left, Donald L. Kline, landscape architect; top right, Allen Gould, painter; bottom left, Christopher Tunnard, landscape architect; bottom right, Andre Schwob, painter — the "eastern team"*

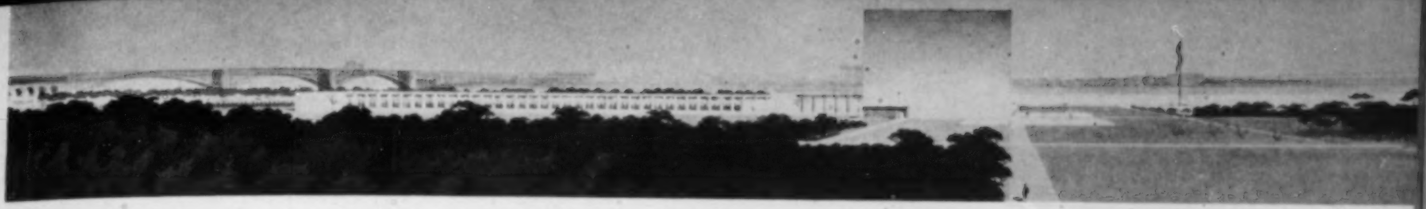


*Living memorial of first phase was open pavilion; pictorial elements included large transparencies. In all plans, the cross-shaped domed building on axis is the Old Court House; the old Cathedral is further forward, offset toward the left*

**Shift from first plan (lower) to second (upper) in this project is typical of the changed program. First stage emphasizes long terrace over three vast parking floors taking up change of grade; to right is bus and railroad station, helicopter landings on top; to left, "living memorial" centered on a broadcasting station continuing Jefferson's interest in dissemination of knowledge. In second stage, parking is at grade on terrace at right wing; long structure with round terminal is museum; the other museum, extreme left, is for what advisor George Howe charmingly designated as "architectural remains cherished for sentiment"**

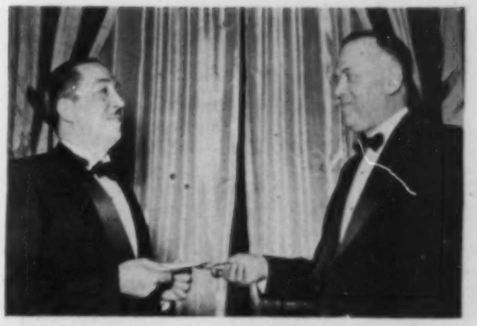
W. C. Runder Photos



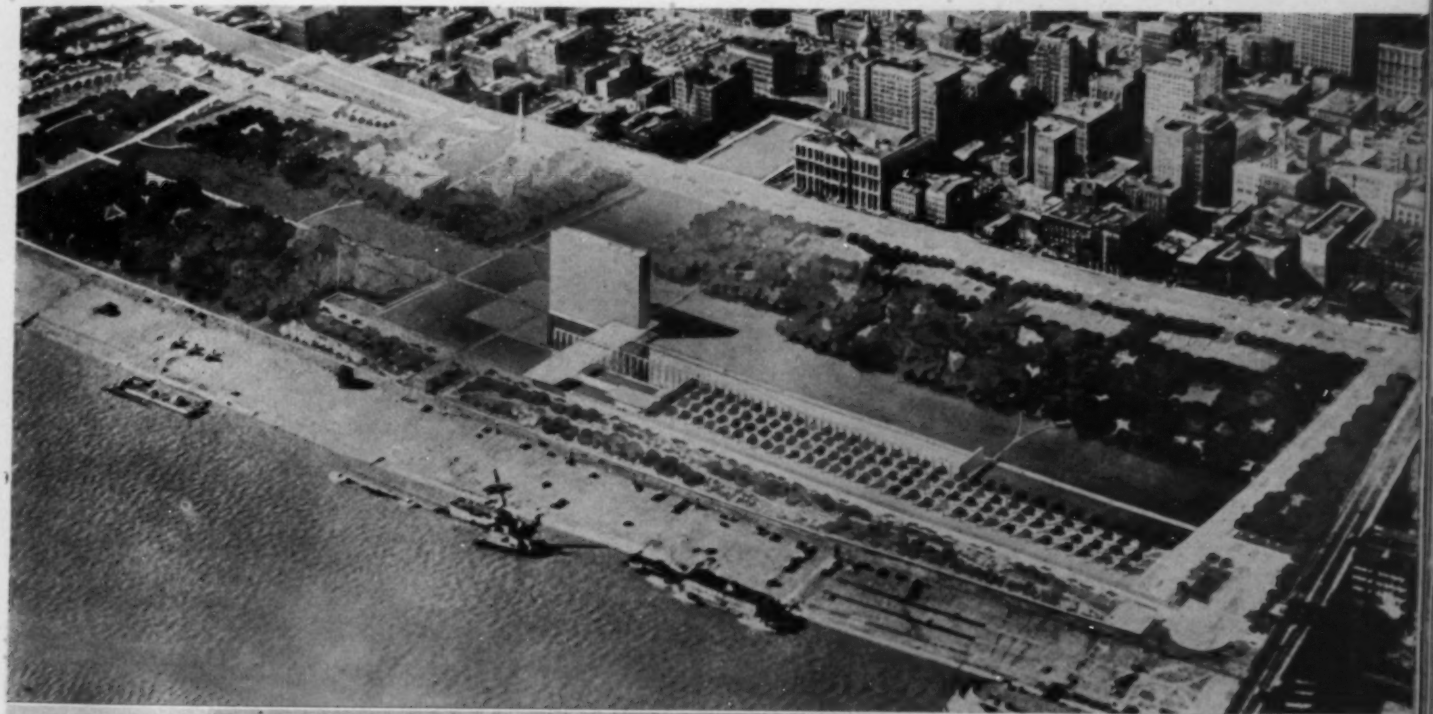


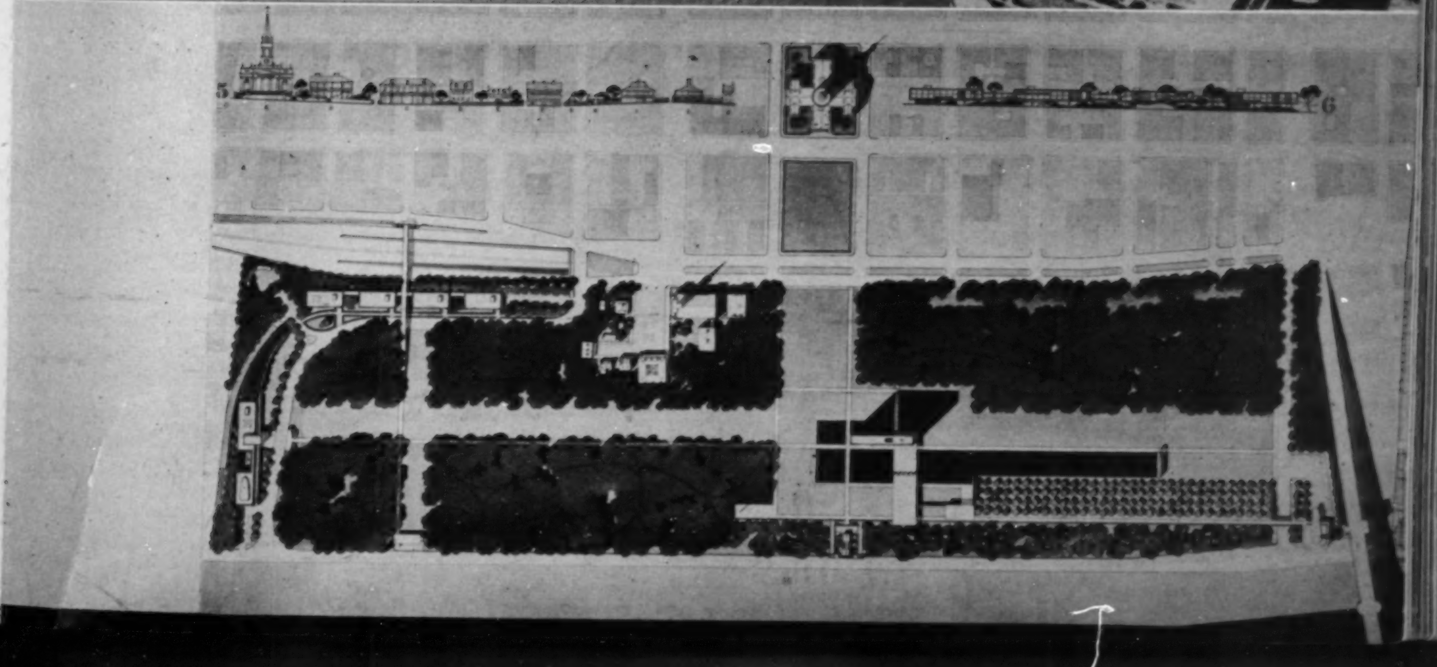
## RUNNER-UP: $2,500 Prize

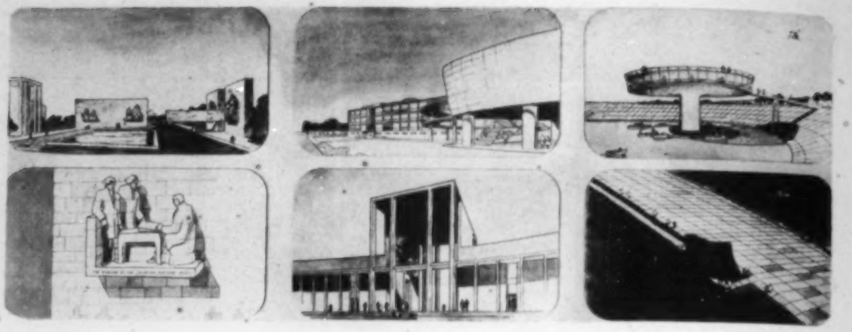
*Harris Armstrong, Architect*



REAL study of the site brought, in the Second Stage, a memorial structure that in its simple mass would stand clear of the existing structures on either river bank. Great sensitivity brought the need of presenting the view from the city which is day-by-day truth. The Cathedral close and the tree-shaded areas are pleasant in scale and concept." — *Report of the Jury*

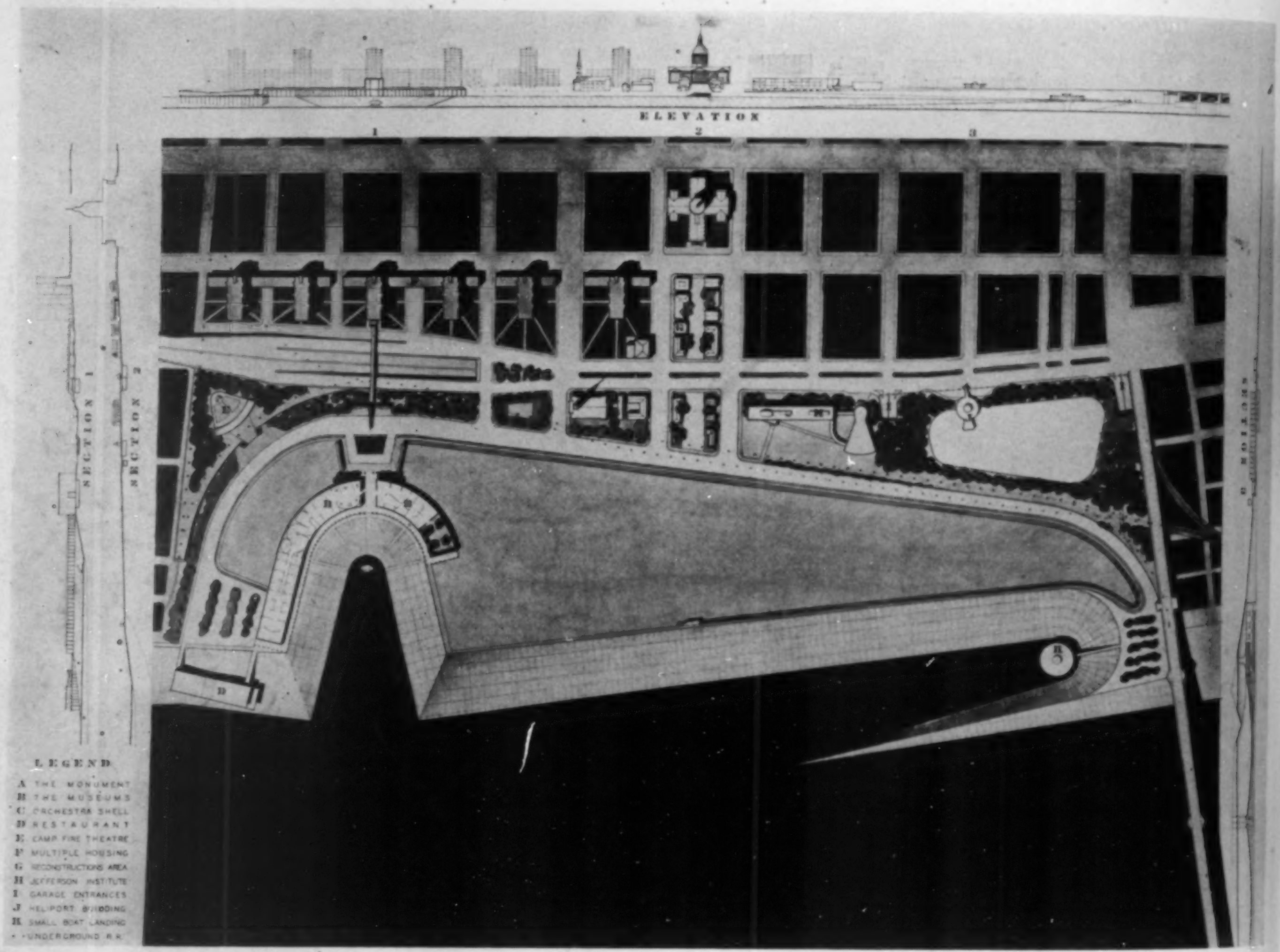






*Details of Armstrong's first submission included slab monument facing pool above left-hand inlet, where the key letter "A" has been obscured in reproduction*

W. C. Runder Photos


ELEVATION
1
2
3
SECTION 1
SECTION 2
SECTION 3
B
B
D
LEGEND
A THE MONUMENT
B THE MUSEUMS
C ORCHESTRA SHELL
D RESTAURANT
E CAMP FIRE THEATRE
F MULTIPLE HOUSING
G RECONSTRUCTIONS AREA
H JEFFERSON INSTITUTE
I GARAGE ENTRANCES
J HELIPORT BUILDING
K SMALL BOAT LANDING
• • UNDERGROUND R.R.

"The first submission (of Harris Armstrong) raised high the symbolism of the levee although in doing so it violated possibility," said the Jury. "A broad conception which by its very austerity would mark it as a monument amidst the natural turmoil of commerce."

In its "austerity," which one might be more inclined to call simplicity, this design typified the quality which set off all winning designs from unsuccessful submissions. The number of separate facilities asked for in the first program was so great that most of the 172 schemes entered appeared to be greatly overcrowded: the other common failing was that it would have been impossible, with these submissions as the only guide, to arrive at any accurate notion of *scale* — how big the area was in fact and in effect.

So entirely fresh was this "ground-sculpturing" concept of Mr. Armstrong, as also that of Isamu Noguchi on page 103, and so possible of realization, that there was some regret when the approach was ruled out.

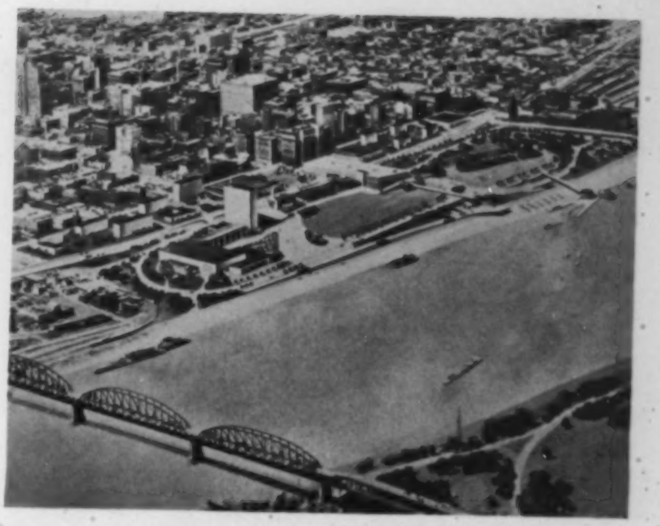
"Alternate" competitors named after the first stage were Percival Goodman, Suren Pilafian, Hugh Stubbins, Jr., and their respective associates, in that order.

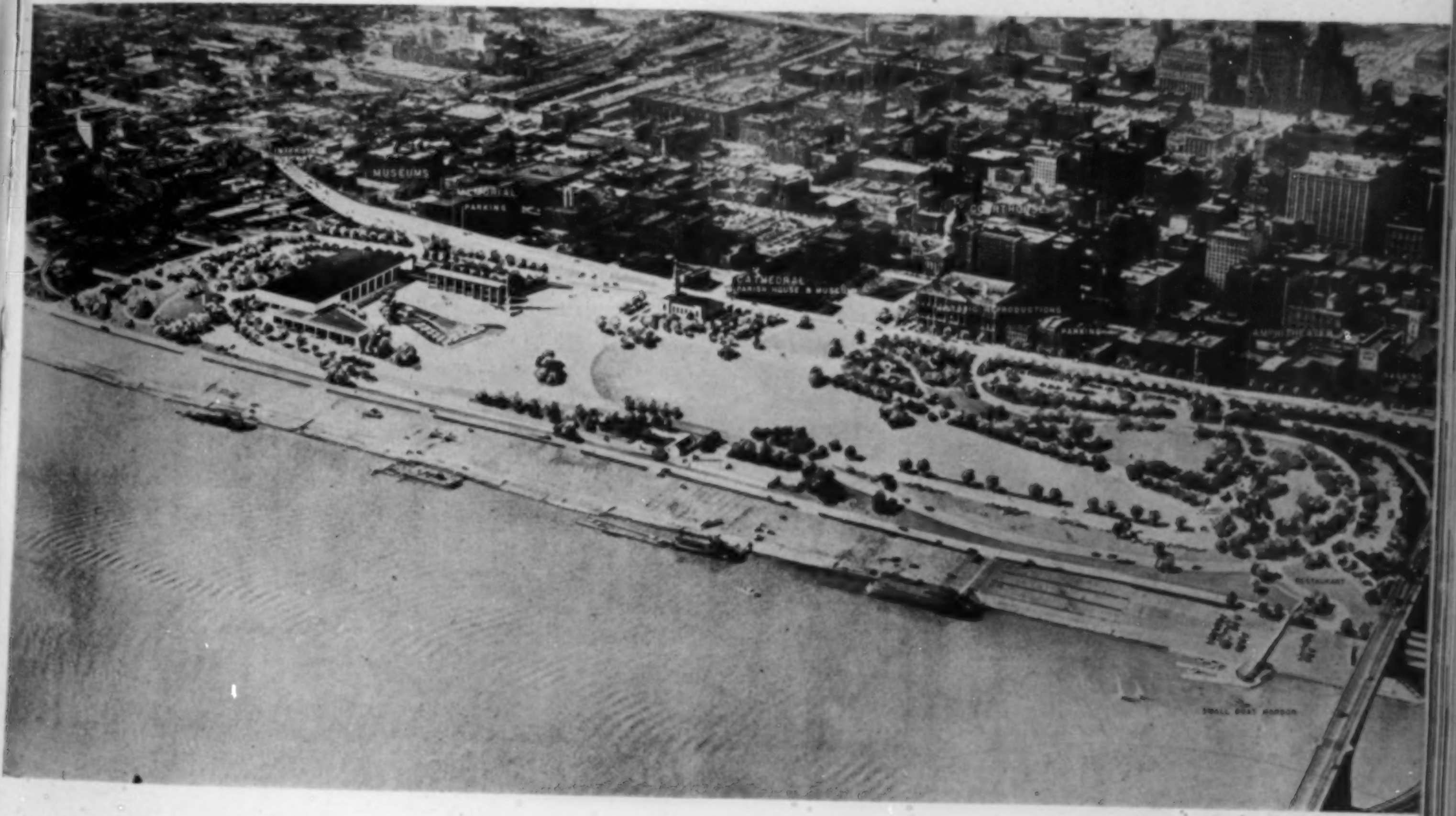
# RUNNER-UP: $2,500 Prize

"An orderly but informal park with welcome open space, surrounded by the structures required, brought this scheme up for further consideration.

These qualities were retained in the second stage, with the monument developed as a minor structure in relation to the museum buildings. The cathedral has been used successfully as a means of transition from a fully contemporary plaza to an area of historical flavor."

— *Report of the Jury*



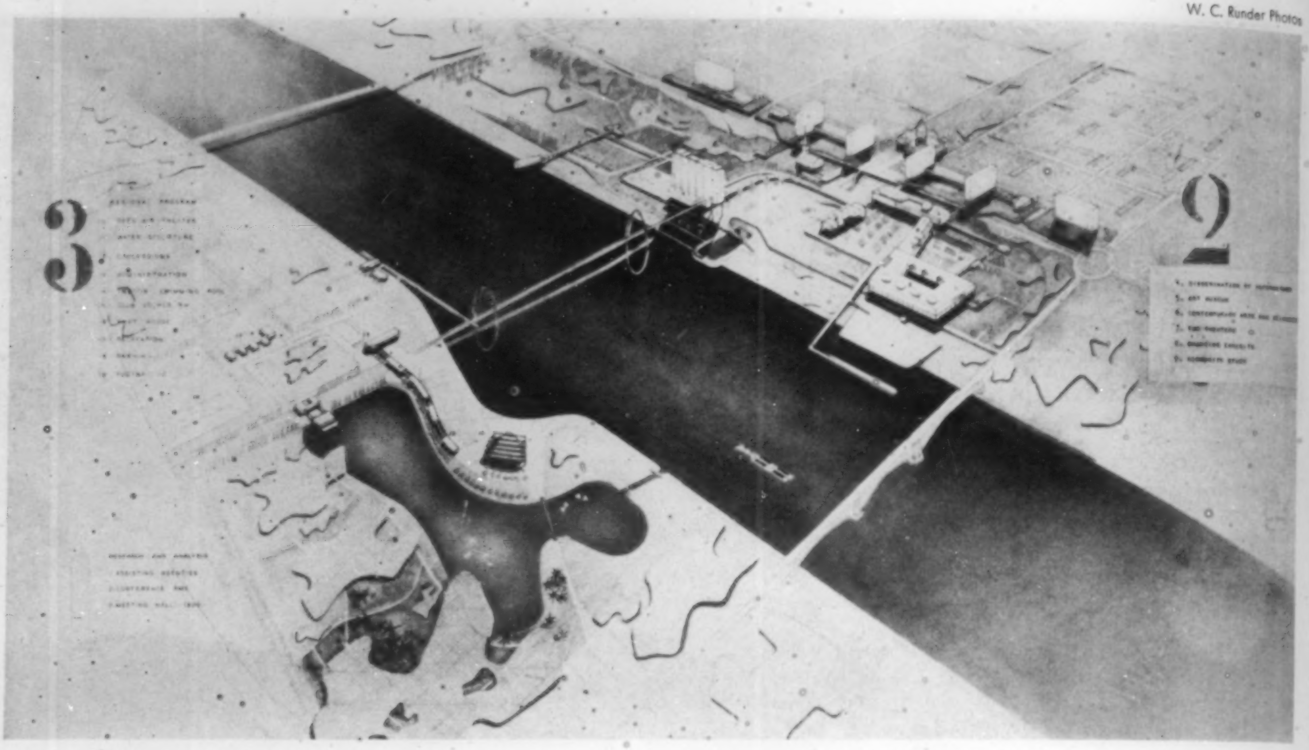

MUSEUMS
MEMORIAL
PARKING
COURTHOUSE
CATHEDRAL
PARISH HOUSE & MUSEUM
HISTORIC REPRODUCTIONS
PARKING
AMPHITHEATER
RESTAURANT
SMALL BOAT HARBOR

*Upper view shows First Stage submission; large photograph the Final Submission of these middle-western competitors*

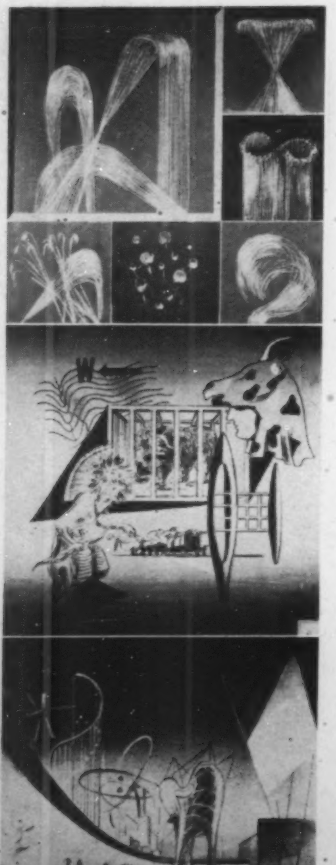
*Left to right: Robert S. Robinson, painter; Julian F. Bechtold, sculptor; T. Marshall Rainey, architect (receiving the prize); John F. Kirkpatrick, landscape architect; Robert A. Deshon, planner; John B. Sheblessy, engineer-planner*

**Final note on winning teams: no winner came from the Far West, which was represented by some 20 submissions**

W. C. Runder Photos

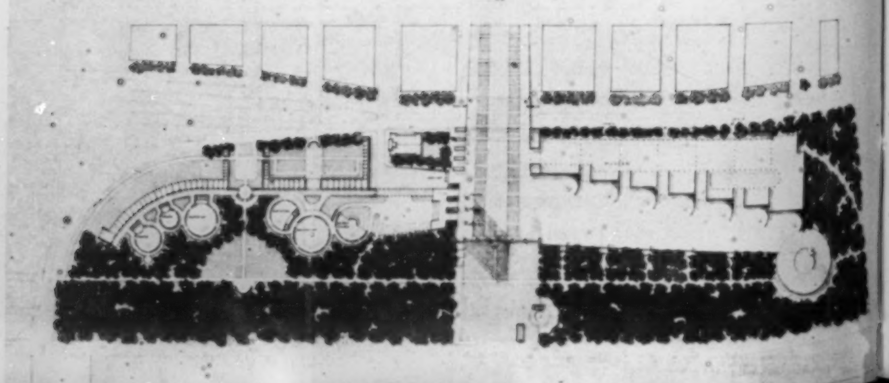


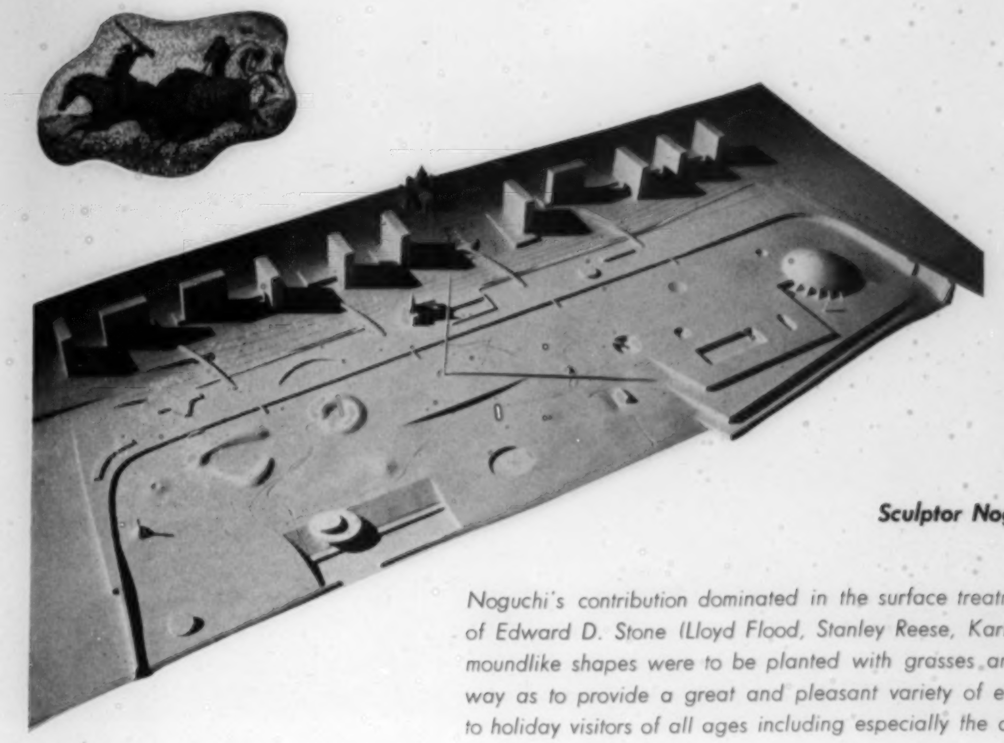
## Architects' Collaborative goes in for hard work, carefree play

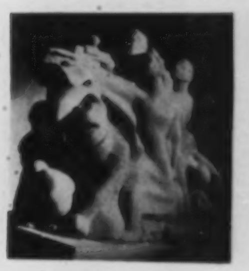


*In common with most competitions, "Jenniemay" produced a great many remarkable ideas among unpremiated projects. The Architects' Collaborative, for example, took very seriously Jefferson's role of scientist (a modern research center) and of educator (center for dissemination of knowledge); provided regional programs, got a plethora of facilities together in good order, played gaily in art and sculpture (painter, Xanti Schawinsky; sculptor, Bruno Innocenti; museum consultant, Alexander Dorner; historian, James Gore King). One of the most generic and creative ideas was Isamu Noguchi's (working with Edward D. Stone) who proposed putting most of the buildings underground, treating the surface as a modern kind of Indian mound which would not only please the eye by its sculpturesque shapes but give climbing, rolling, tumbling children a new experience of Mother Earth. This would be a new integration of architecture and sculpture, of art and play.*

*Hardest worker among all concerned was probably patient, fair, witty George Howe, professional adviser, adopted son of the city.*





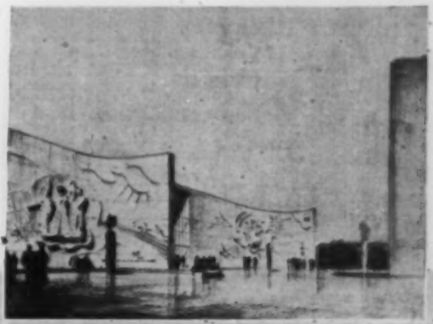


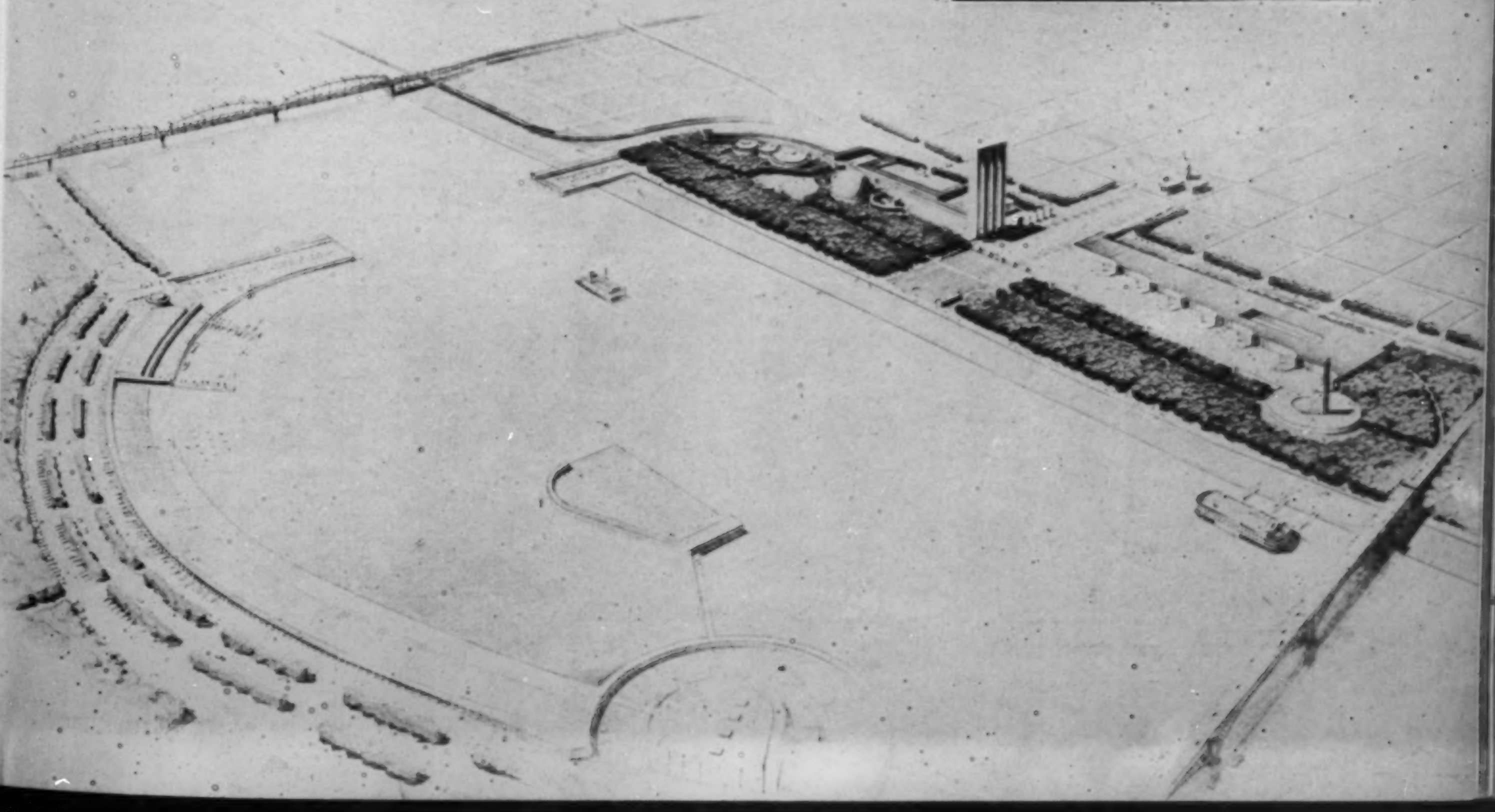
## Sculptor Noguchi makes a modern mound

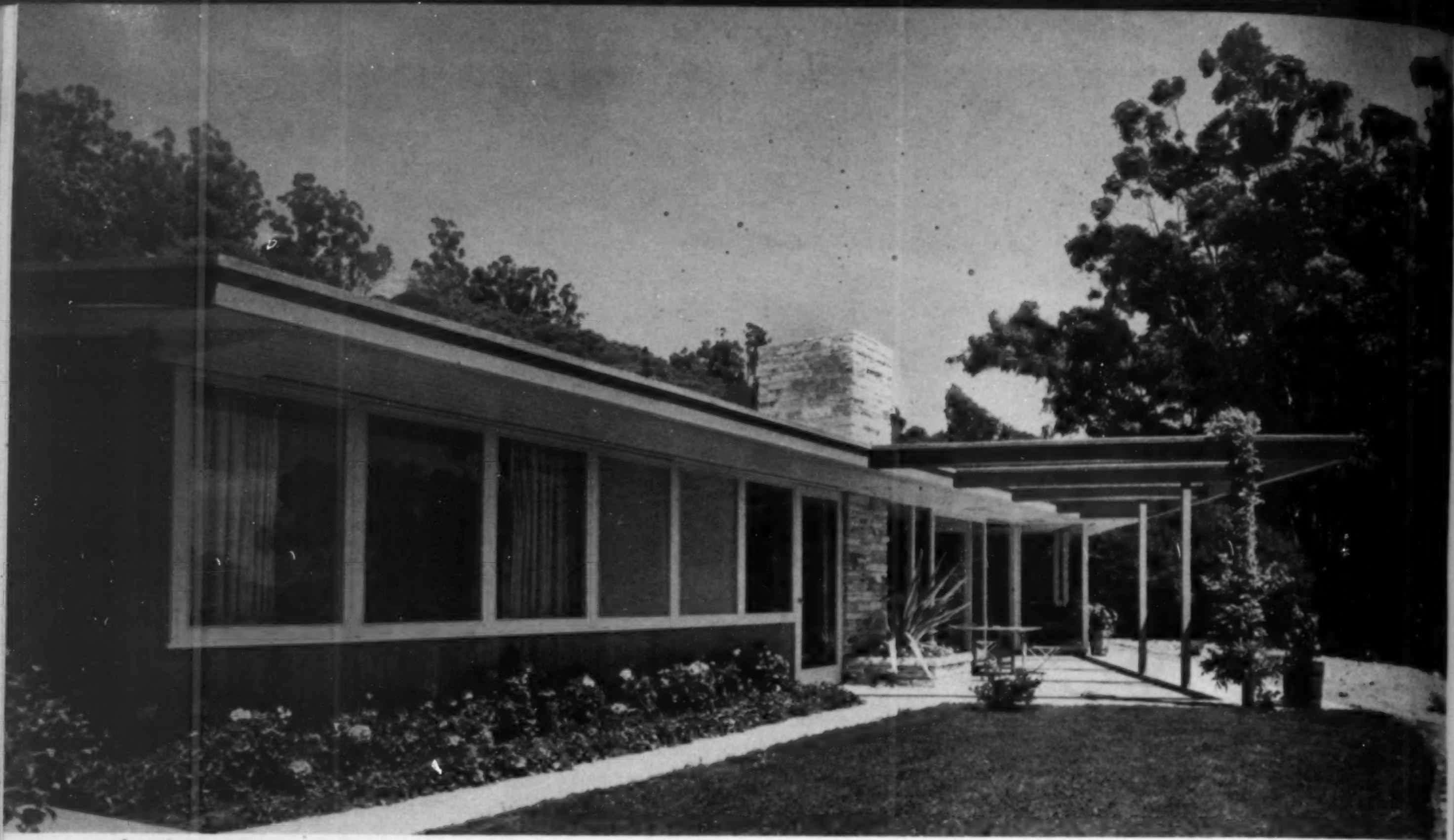
*Noguchi's contribution dominated in the surface treatment of the scheme by the team of Edward D. Stone (Lloyd Flood, Stanley Reese, Karl Holzinger, Henry Billings). The moundlike shapes were to be planted with grasses and otherwise surfaced in such a way as to provide a great and pleasant variety of experience, tactile, kinetic, visual, to holiday visitors of all ages including especially the children*

## Eliel Saarinen makes architectural swirls

*In a submission separate from that of his son, the elder Mr. Saarinen used a vista of stepped curving walls along the face of his major museum; produced his other buildings in domed circular forms; set a vast arched parking area across the river, and built stadia out to project into the water or be surrounded by it*







Roger Sturtevant Photos

# A SMALL HOUSE OF IMPRESSIVE STATURE

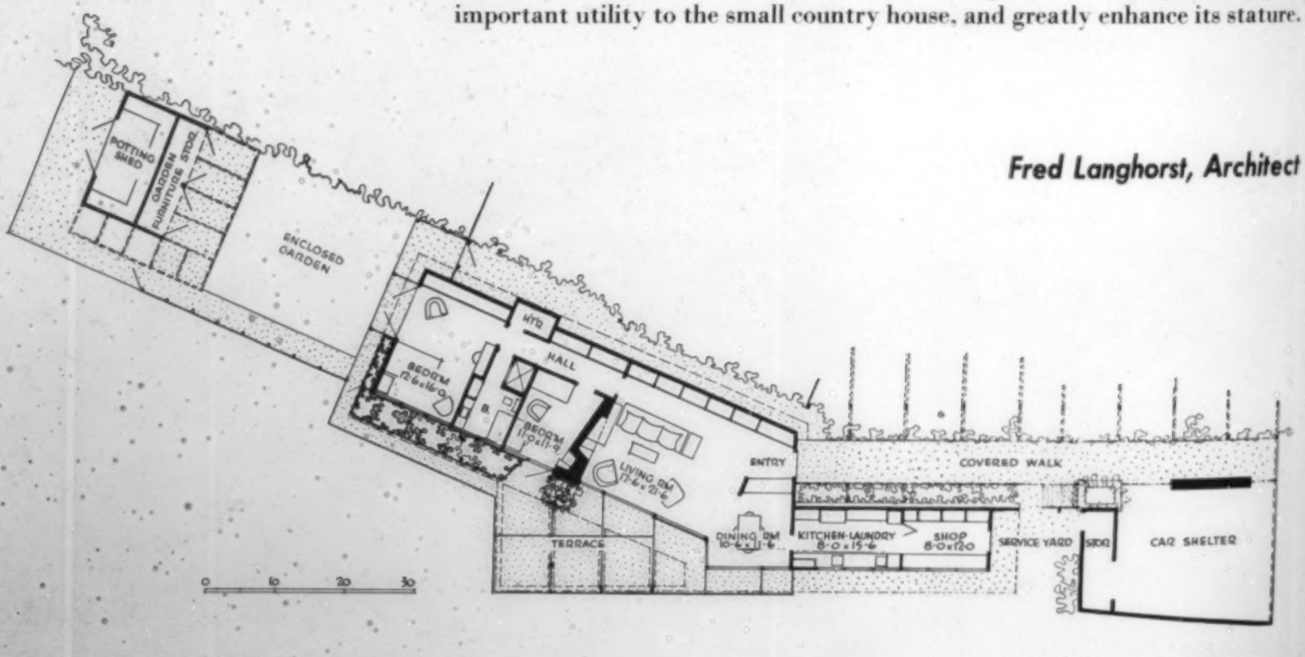
**House for Dr. and Mrs. Alex J. Ker,**

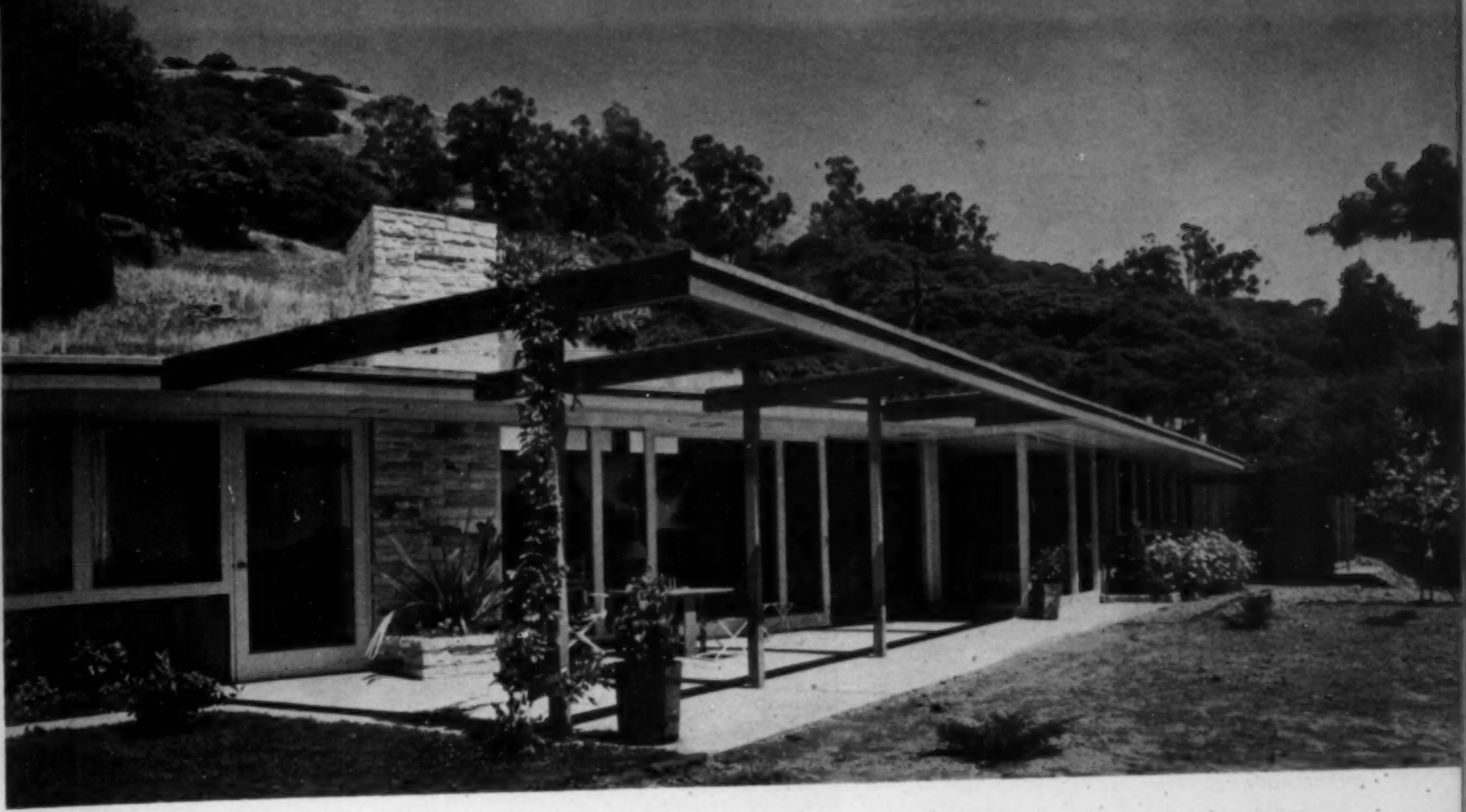
**Marin County,**

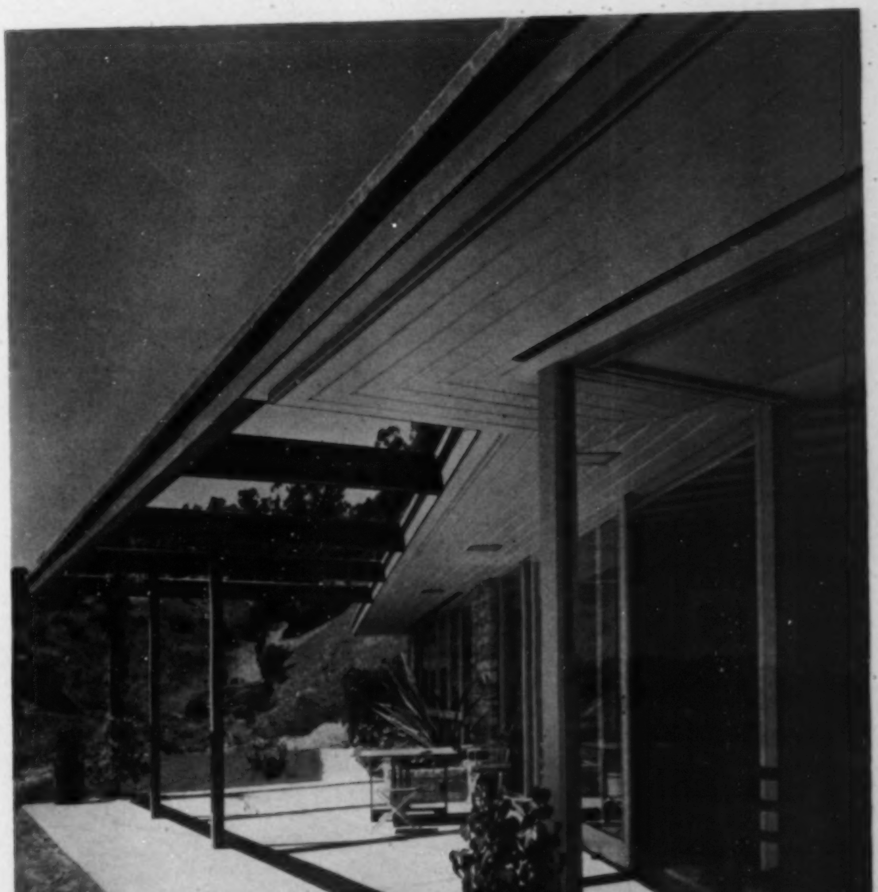
**California**

CONTEMPORARY design in California seems bent on confounding critics who use such terms as "nude," "ascetic," or "dull." For this house, which won first award in a recent competition by *House and Garden*, is ample demonstration that modern can be as imaginative, as impressionistic, as anybody could wish. It makes full use of extended structural members, contrasting forms and materials, and long, strong lines to create dramatic interest. And, incidentally, the several accessory spaces implicit in such planning add important utility to the small country house, and greatly enhance its stature.

**Fred Langhorst, Architect**

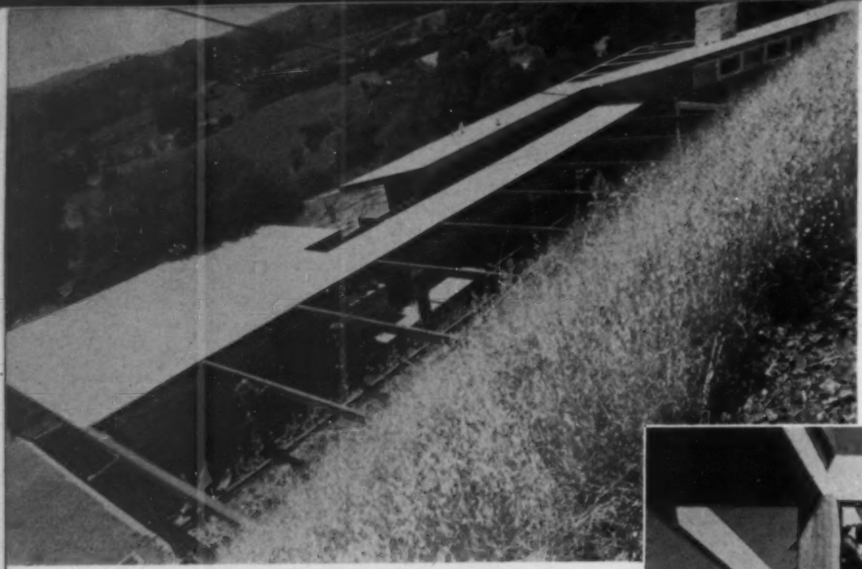

POTTING SHED
GARDEN FURNITURE STOR.
ENCLOSED GARDEN
HTR
HALL
BEDR'M 12-6 x 16-0
B.
BEDR'M 11-0 x 11-9
LIVING RM 17-6 x 21-6
ENTRY
COVERED WALK
TERRACE
DINING RM 10-6 x 11-6
KITCHEN-LAUNDRY 8-0 x 15-6
SHOP 8-0 x 12-0
SERVICE YARD
STOR
CAR SHELTER
0
10
20
30

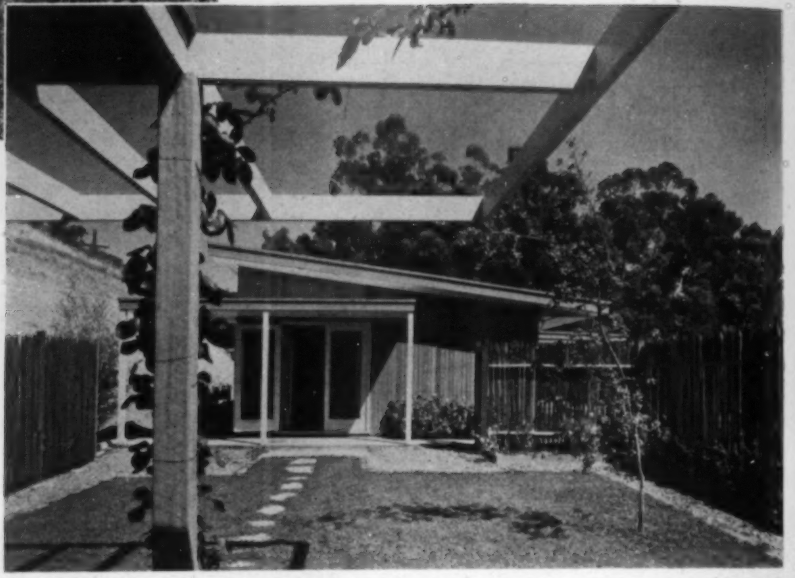




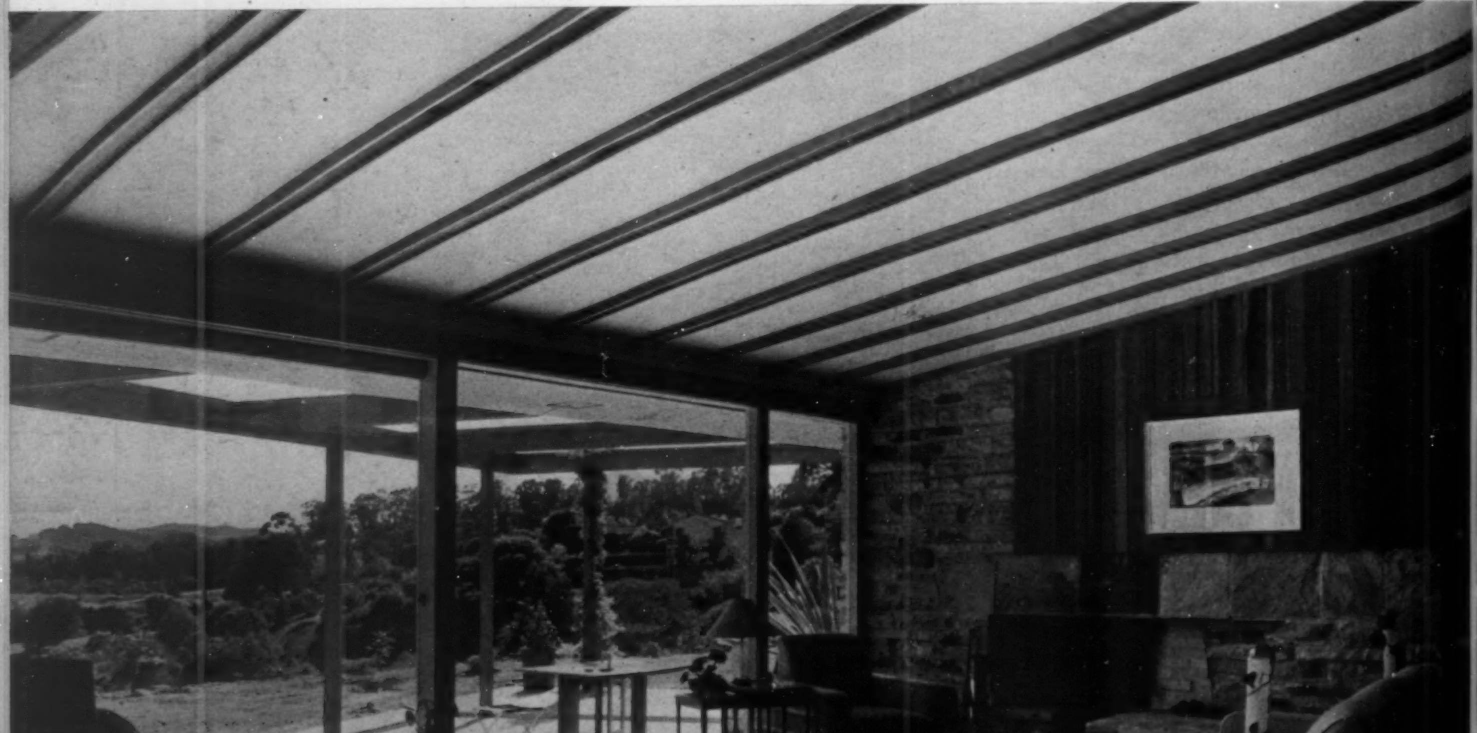
*All rooms have been related to a southerly exposure, which fortunately coincides with the view from this hillside site. The rooms have all been related also to appropriate corresponding outdoor living areas, an outdoor living area in these views, in other photographs an enclosed garden, a service yard, a covered entry*

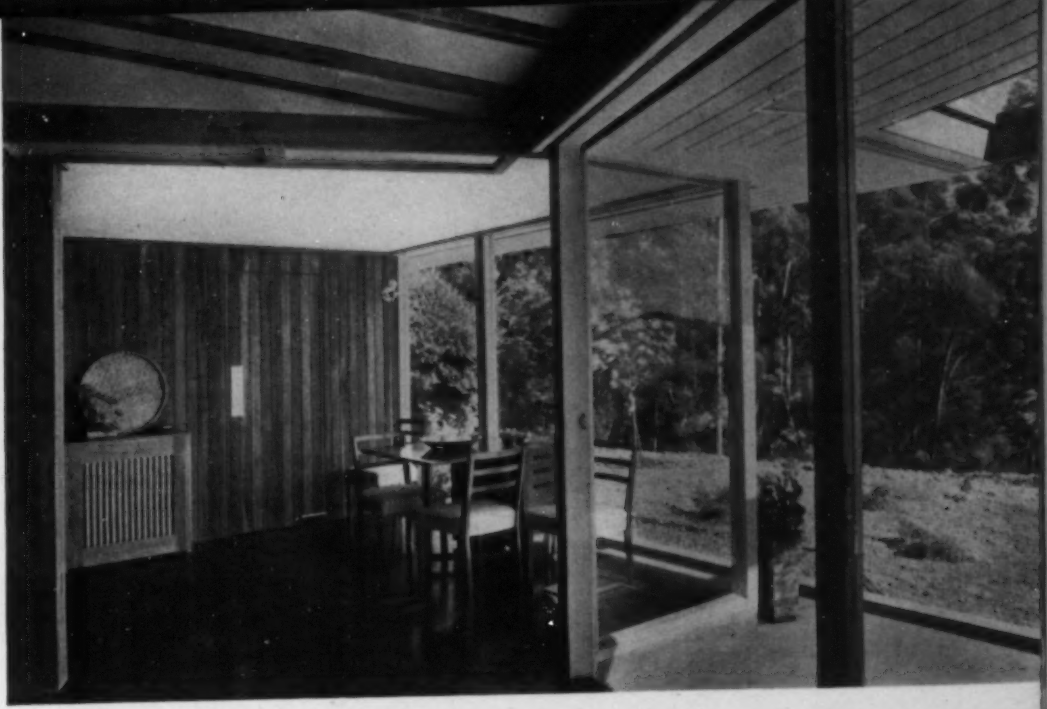
*While the site comprised several acres, the topography was rugged. An extensive grading operation created a long level area of varying width, running east and west. The house is set close to the hill, to leave maximum free area to the south*





The house is closely tied to the hillside, structurally as well as visually. This placing provides the maximum level area at the other side, south, for enjoyment of sunshine and view. Roof members of the car shelter extend to piers on hillside

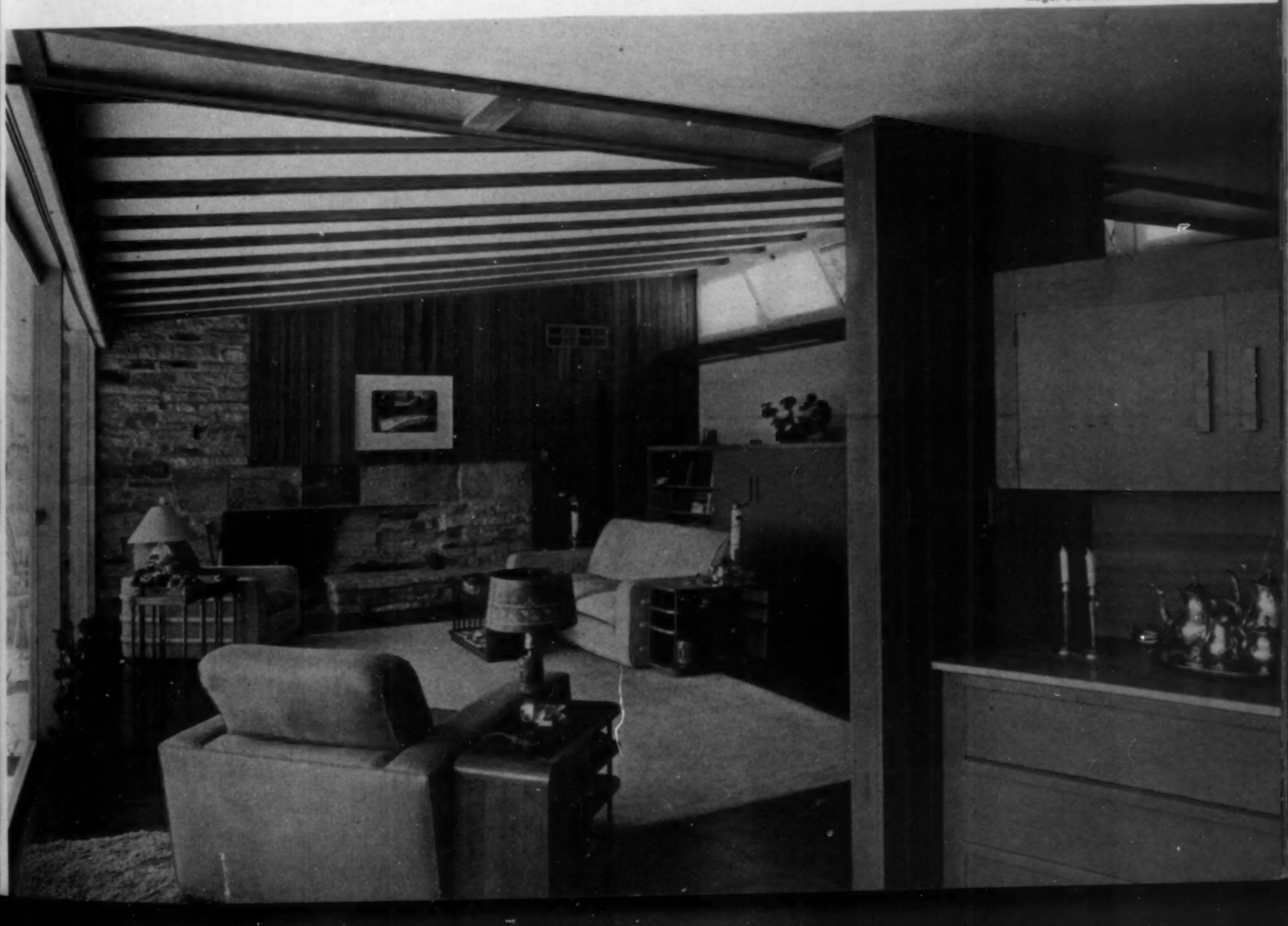


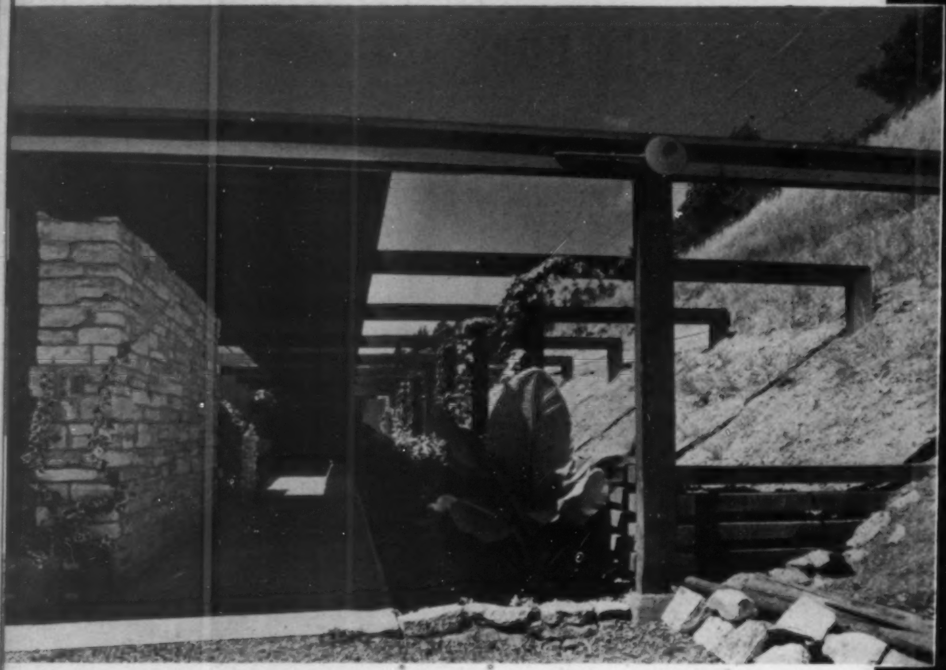


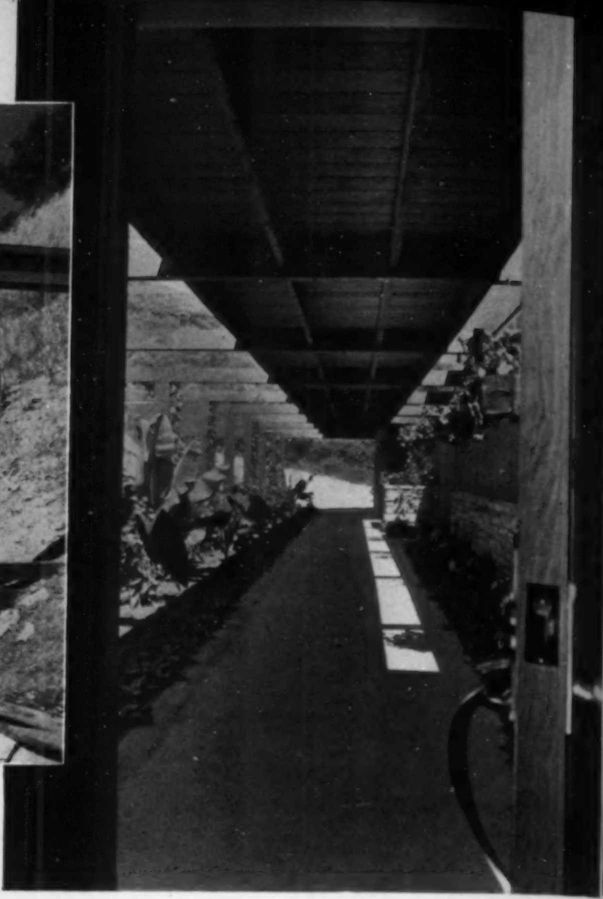
View of dining room as seen from living room. Note living room light shelf over doorway. Walls redwood, ceilings gypsum board

The architect explains that, since this house was definitely designed for adults, he waived one of his basic rules — that a living room should not be a passage. Except for the high windows the room is closed to the crowding hillside, but expansively open to the valley view. A light shelf on two walls provides indirect general lighting. Stone hobs in the fireplace are "andiron eliminators" and serve as an informal place for sitting close to the fire. Heating is by gas-fired, forced warm air furnace

Roger Sturtevant Photos

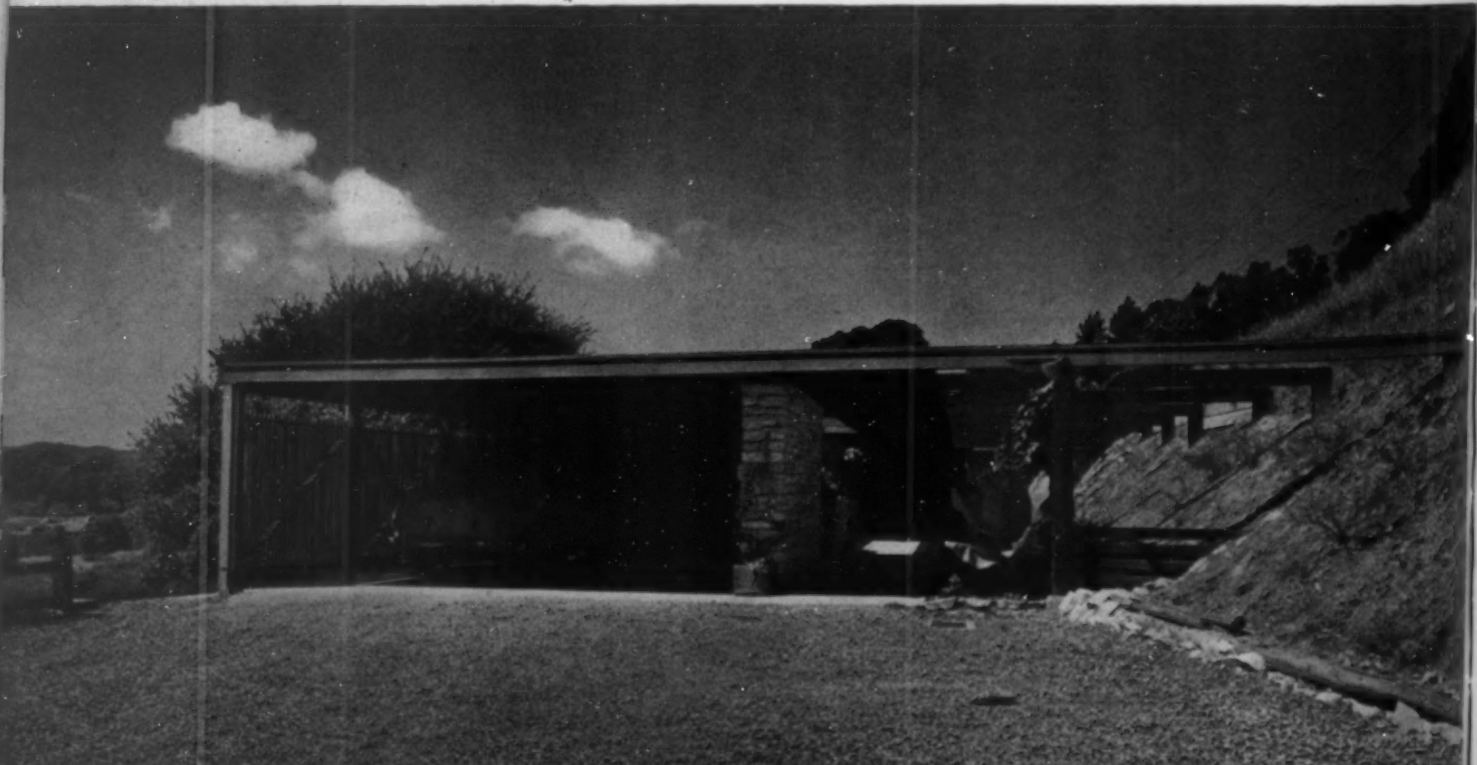






*In order to preserve the privacy of various outdoor living spaces, the entrance is brought in from the parking space along the rear of the house. An extension of the garage roof covers the first portion of the walk and continues free of the house to the entrance door. As the upper pictures show, the effect is quite gracious; the shelter suggests the regal canopy and red carpet of an earlier day. A planting strip screens the walk from the service yard on the one side and the cribbing-type retaining wall on the other*

Roger Sturtevant Photos



# CURRENT TRENDS IN STORE DESIGN

*by Morris Ketchum, Jr., A.I.A.*

*of Ketchum, Gina and Sharp, Architects*

After a period of slow progress during the war and depression years, retailing has now embarked on a full-fledged building program. In every branch of trade — from specialty shop to department store — new building projects are on the drafting board, under construction, or newly completed. The encouraging feature of this new era in store design is the high quality of its planning. Thanks to the stern training of the war and depression years, merchants and their architects are now building stores that are realistic answers to the demands of contemporary merchandising.

Today, store designers and their clients are fully exploring — and solving — the inter-related problems of the indoor and outdoor shopping street — sales and services, advertising and display, pedestrian and auto traffic, walkways and parking spaces. In addition, a real start has been made in solving the problems of our blighted city shopping districts and in creating new, *decentralized shopping centers* built for the drive-in trade. This is perhaps the most significant current trend.

In our cities, the problem of the small retail shop is being restated in fresh, new terms. Designers have long since realized that the basic fundamental of store planning is *flexibility* — in the planning of the indoor sales space (and its behind-the-scenes operational activities). The current trend is to organize each sales floor for flexible free-flow of horizontal traffic and for centralized vertical traffic, which provides an efficient merchandise transportation system for incoming stock and outgoing deliveries. Flexibility is furthered by equipping the sales space with stock fixtures that have many interchangeable parts and uses. Another major trend is the integration of sales space and sidewalk displays by a visually open store front that — for the sake of flexible change of pace — may become a closed front whenever closed window backgrounds are installed.

For maximum flexibility and adaptability, the current trend is to reduce to the absolute minimum those structural elements that form the fixed shell of the store building — columns, floor slabs, shaftways, etc. The remainder of the structure — the finish floor surfaces, ceilings and partitions — that enclose sales, services and displays — are being designed as dry-built, knock-down units capable of multiple use and providing flexible access to the space and equipment they enclose.

Two other important trends are worthy of special note — the increasingly effective lighting of both store and merchandise, and the year-'round air conditioning that provides customer comfort and retailer profit. The examples of non-glare, high-level lighting (without distressing brightness contrasts) show both imagination and engineering skill in using light as an integral design factor and a sales adjunct.

All this progress is evident in the current crop of new shops and stores presented in this issue. Perhaps the most striking examples are those

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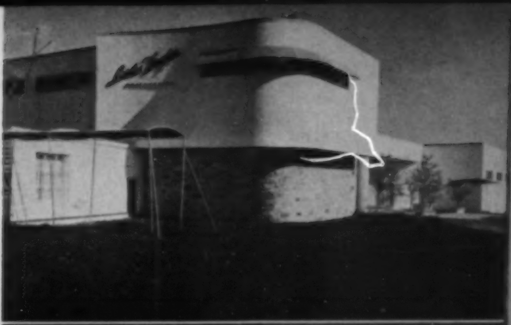
**STORES** ARCHITECTURAL RECORD'S

BUILDING TYPES STUDY NUMBER 136

APRIL 1948


111

123

128

134

Irene Burke
140

PAGE 142

132

135

136

Erickson
FLORISTS

138

139

PAGE 144

branch department stores that, by their highway location and drive-in facilities, have made it possible for their parent stores in the heart of the city to expand horizontally. Stores always follow the crowd — there is no mousetrap philosophy to retailing — and these stores are following their decentralized customers out to the suburbs.

The chief problem facing any department store is to give its customers the same cheerful personal service, the same leisurely selection, the same glamorous sales atmosphere offered by its smaller rivals. The problem is not an easy one, but careful attention to the individual design of each sales department and to the overall relationship of all departments on the floor has successfully created, in these new branch stores, the atmosphere of an indoor collection of specialty shops instead of the warehouse atmosphere of a bargain basement devoted to a volume trade. Behind the scenes, an equally careful study of operational requirements has given the sales force more freedom from routine, more time for personal salesmanship.

Next, the smaller shops and stores located in the heart of the city prove that it is still possible to give a fresh answer to the problem of high rentals, restricted space, and a store front almost limited to two dimensions. Within their own slice of shopping environment, each of them has solved the eternal problems of maximum interior efficiency, exterior advertising and display, individuality and character. Their store buildings are necessarily part of the weird, accidental pattern common to all our city shopping districts. There is little or no chance for light, air, or spatial development around each store. Instead, their designers must do their best to appeal to the passing crowd by taking every advantage in width, height, and depth of the limited display frontage at their disposal. Then, when they are all through, a curbed parked truck may hide all their efforts, destroy all the sparkle and glamour of their sidewalk show.

The list is long and varied, but most of the stores shown appeal to women shoppers. This appeal is visually expressed in the architecture of store fronts and sales floors — in the refined elegance and conservative luxury of the perfume salon, the carefully controlled mass displays and open hospitality of the popular-priced dress shop, in the open showcase character of the mid-block shoe stores. All these shops, regardless of their individual showmanship, have one trait in common — the promise that shopping will be a leisurely, pleasant experience spiced with personal attention from the sales force and an entertaining background and atmosphere.

The men's clothing store strikes a different note on the same theme. Its store front emphasized privacy tempered by hospitality, its sales floor is organized like the lounge of a men's club. It successfully combines "sample selling" with variety sales of furnishings and clothing. Materials, textures, colors and lighting all combine to make its men customers feel at home.

The camera, flower, jewelry and liquor shops — all selling more to the general public than to a particular age or sex — rely on emphasizing the specialized appeal of their respective merchandise. Each one has solved its own problems of site, location and layout; all represent a better than average answer to the small store problem.

These selected examples of current progress in the field of store design give an encouraging picture of its future. Today's demand for increased shopping facilities is being met by a larger group of trained designers than have ever before devoted themselves to this branch of architecture. Despite the fact that some find it hard to free themselves from the use of imitative design cliches and from the temptation to "busy" their solutions with unnecessary and distracting detail, all have realistically attacked the problems involved. Their shops and stores are cleanly organized, well equipped and well related to the shopping environment around them. With such a high average today, tomorrow's stores should mark the full maturity of design for merchandising.

**Morris Ketchum, Jr., has collaborated further by analyzing and commenting upon most of the selected stores shown in the following pages**

# LORD AND TAYLOR'S WESTCHESTER STORE

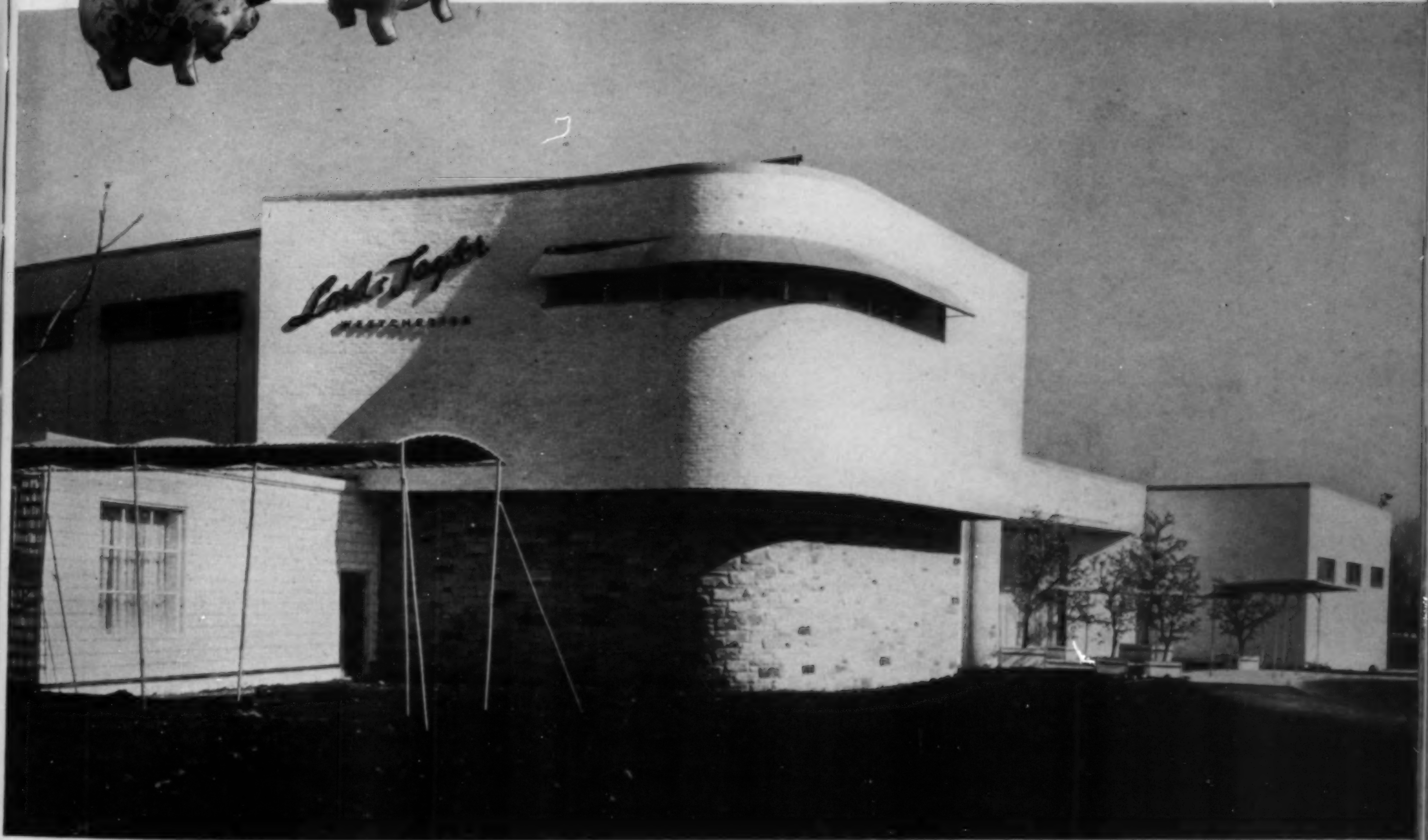
***Starrett & Van Vleck, Architects***

***Raymond Loewy Associates, Designers***

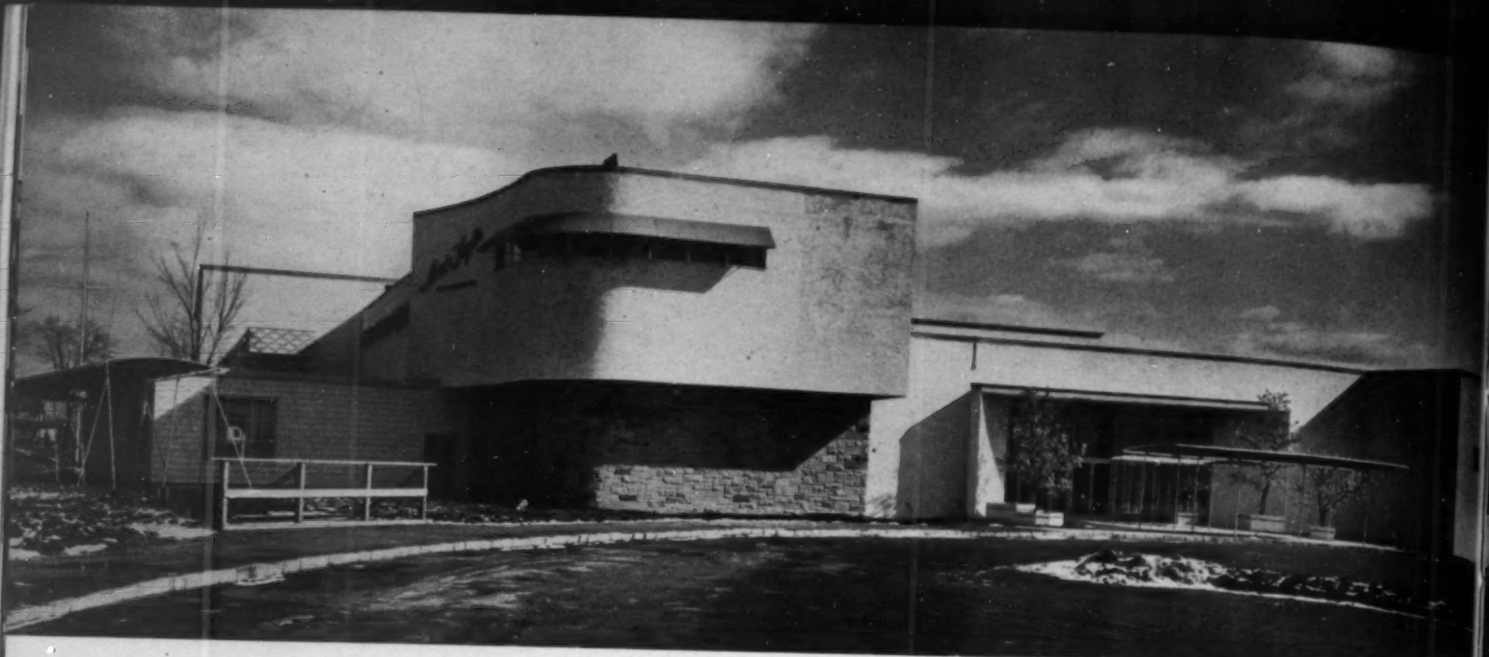
***George A. Fuller & Co., Builders***

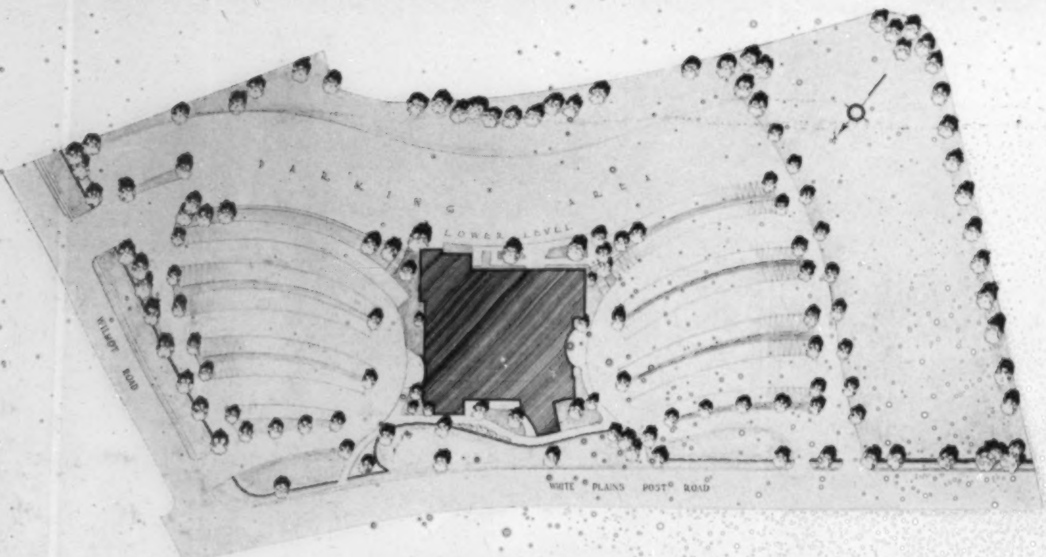
WE'RE AS HAPPY
AS PIGS IN CLOVER
TO BE IN WESTCHESTER

Left, Gottscho-Schleisner Photo; Below, John Gass



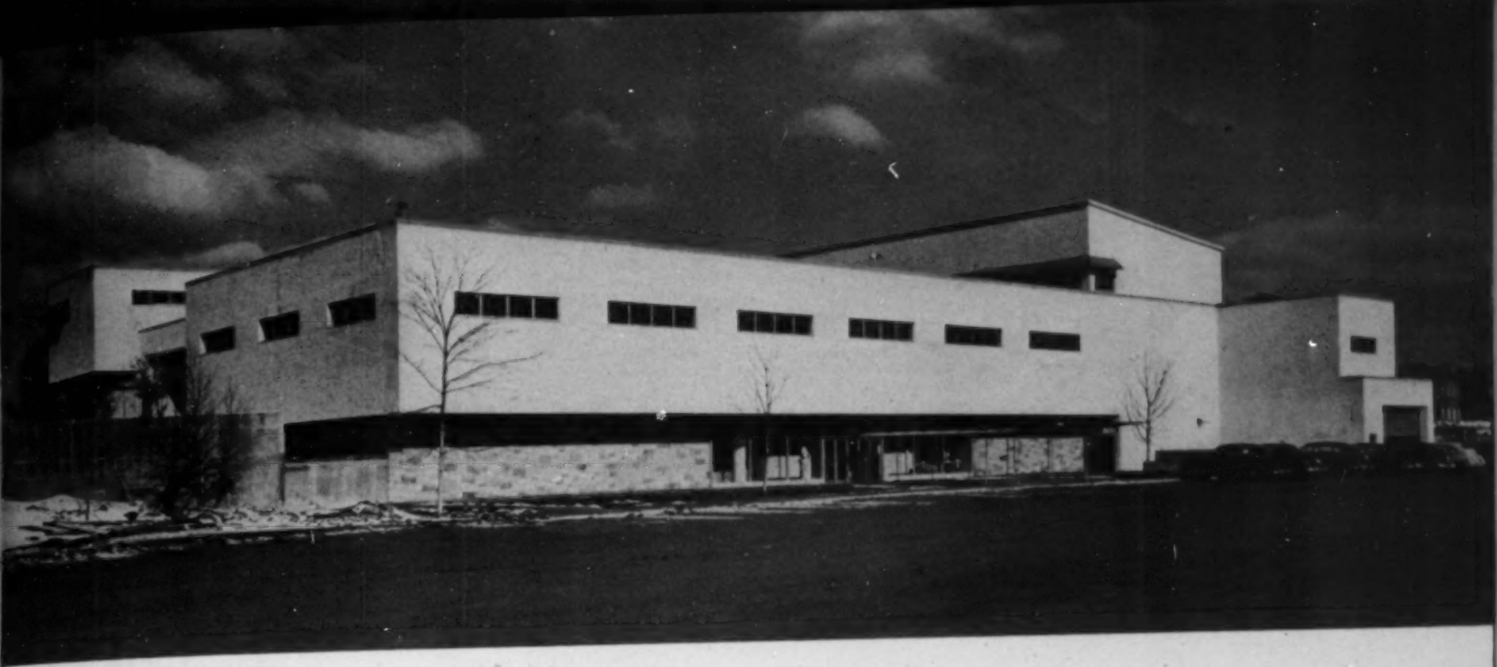
America's newest and most inviting store opened its doors, and blocked traffic for miles, the last week in February. It is a model of smart advanced design and incorporates many of the newest most effective contributions to the art and science of retail merchandising. An atmosphere of cheerful well-being is created by the open, airy, light, colorful, free-flowing interior design. The planning gives each merchandising department its own appropriate and individual milieu and decor while maintaining a consistent unity of spirit and a gay harmony of pastel color. Settings are successfully designed to augment the display of the merchandise itself, not to compete with it. And the store is as efficient as it is attractive, for the facilities for delivery, storage, distribution, marking, wrapping, etc., have been arranged to save steps, time, space and handling. —*M. K., Jr.*




PARKING AREA
LOWER LEVEL
WILMOT ROAD
WHITE PLAINS POST ROAD

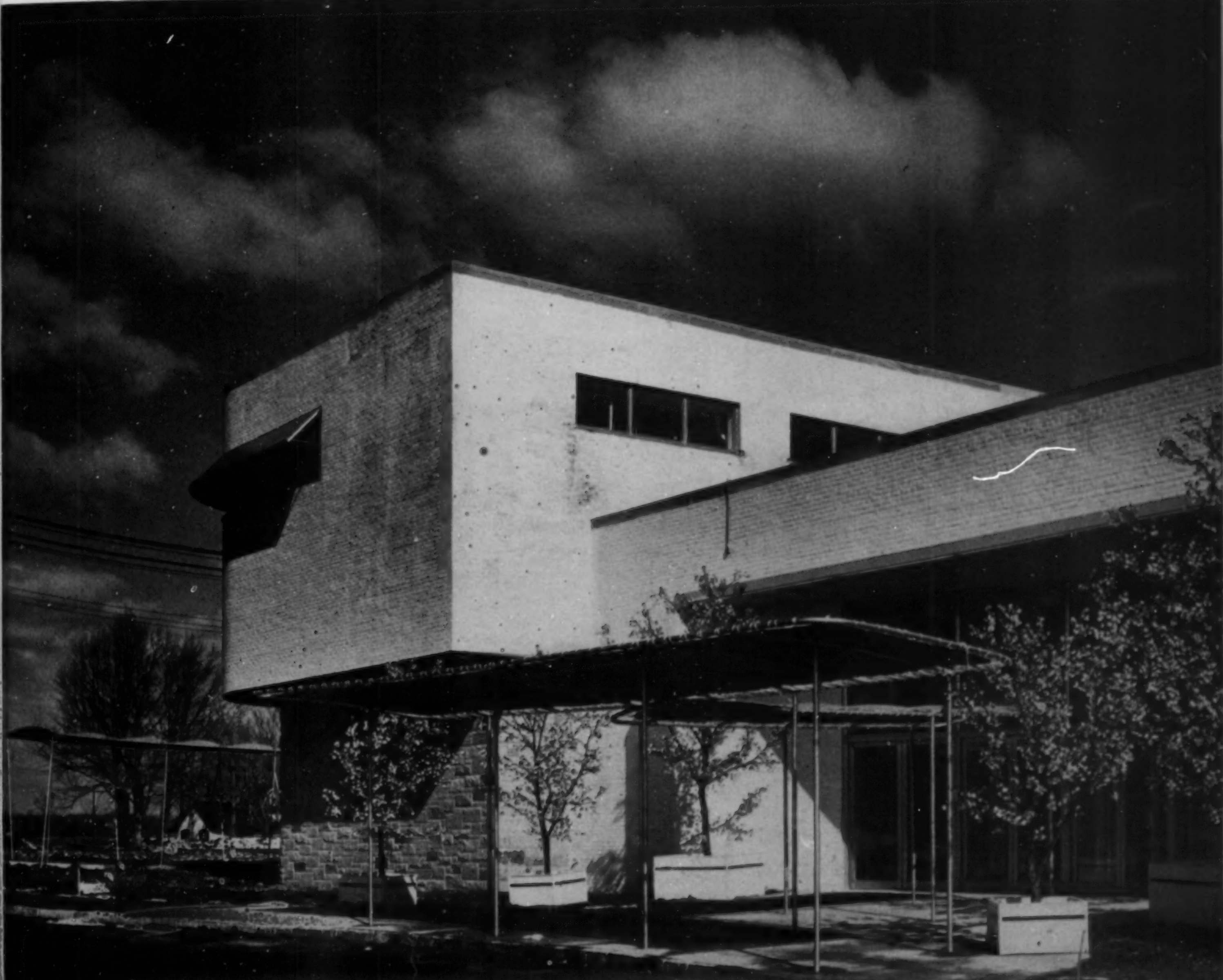
*Plan of the site showing parking. W. Lee Moore, Landscape Architect*

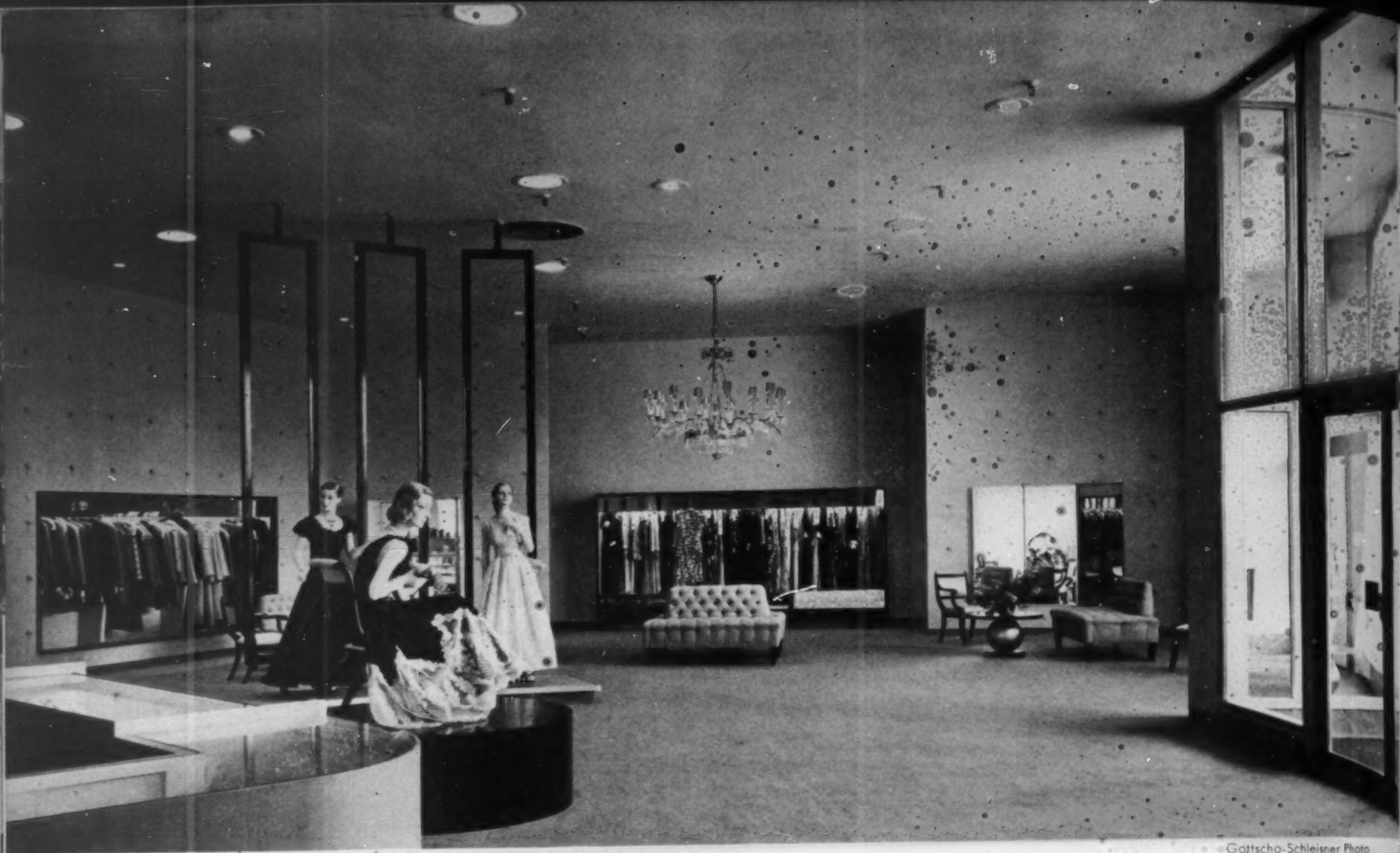
*An easily-accessible, centrally-located suburban site was chosen for the store at White Plains and Wilmot Roads in an uncongested neighborhood. Parking for 1000 cars is provided and buses go past the door. The plan shows the well-arranged parking facilities and eventual attractive landscaping. Above, the south-west corner and canopied entrance. Left, looking south along the White Plains Road or west side of the store*



*There are two selling floors, and, due to the contours of the site, both are accessible by car. The lower level on the east side (or rear) of the store is shown above; the receiving department and truck loading area are at the north-east corner. Below, the south entrance, executive offices, employee's lounge and lunch room open on the wide roof deck of the second story*

Gottscho- Schleisner Photos





Gottscho-Schleisner Photo

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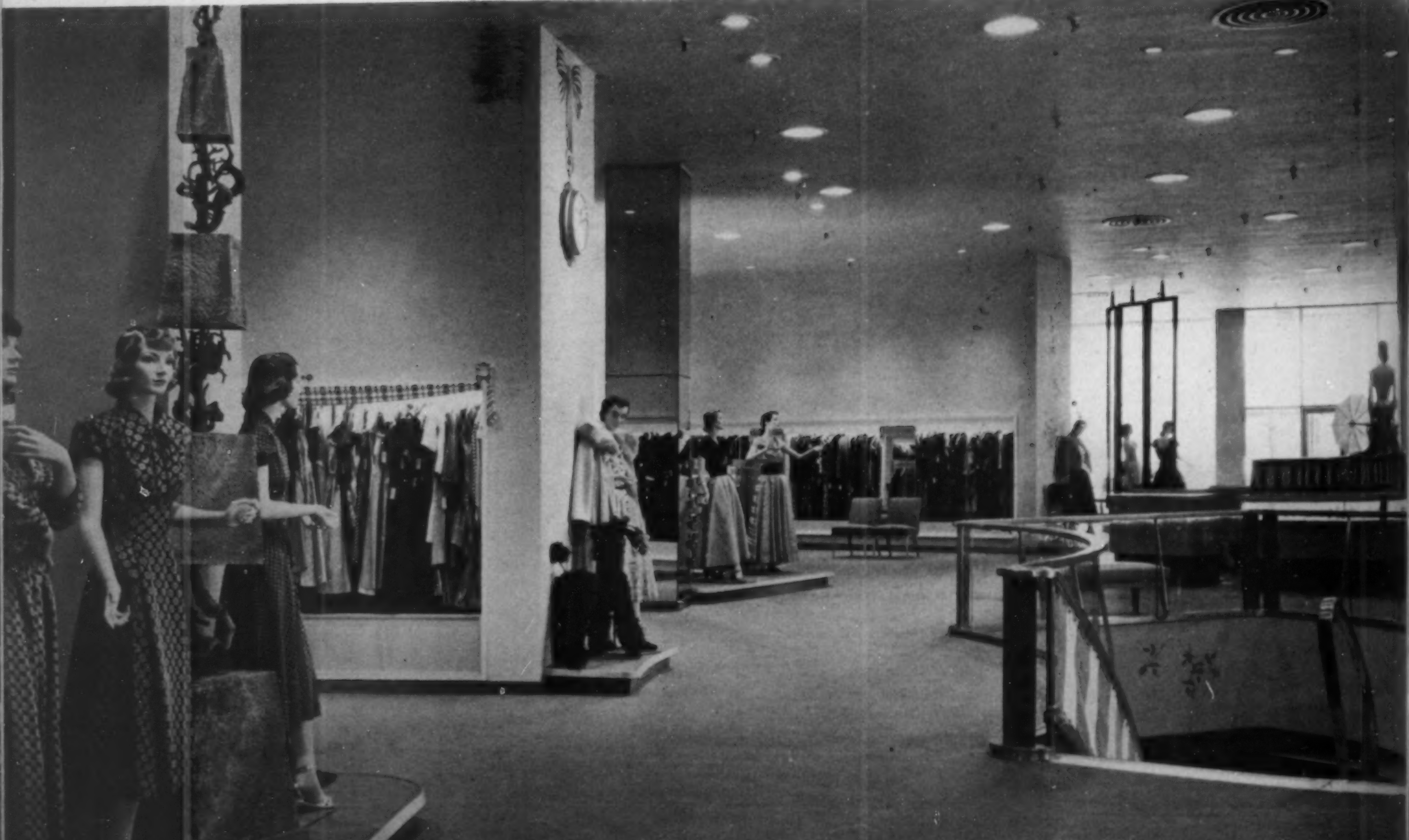
Above, the dignified setting for "better fashions" opens to the east of the high, glazed, south entrance. Below, looking toward the south entrance from the "Young New Yorker" department; stair to lower floor in foreground. Opposite, the semi-circular area of the "Young New Yorker" section. The planning of stock rooms, fitting rooms and other off-stage services is worthy of careful study. Accessibility, efficiency, and flexibility are apparent. Numerals refer to camera locations on the plan



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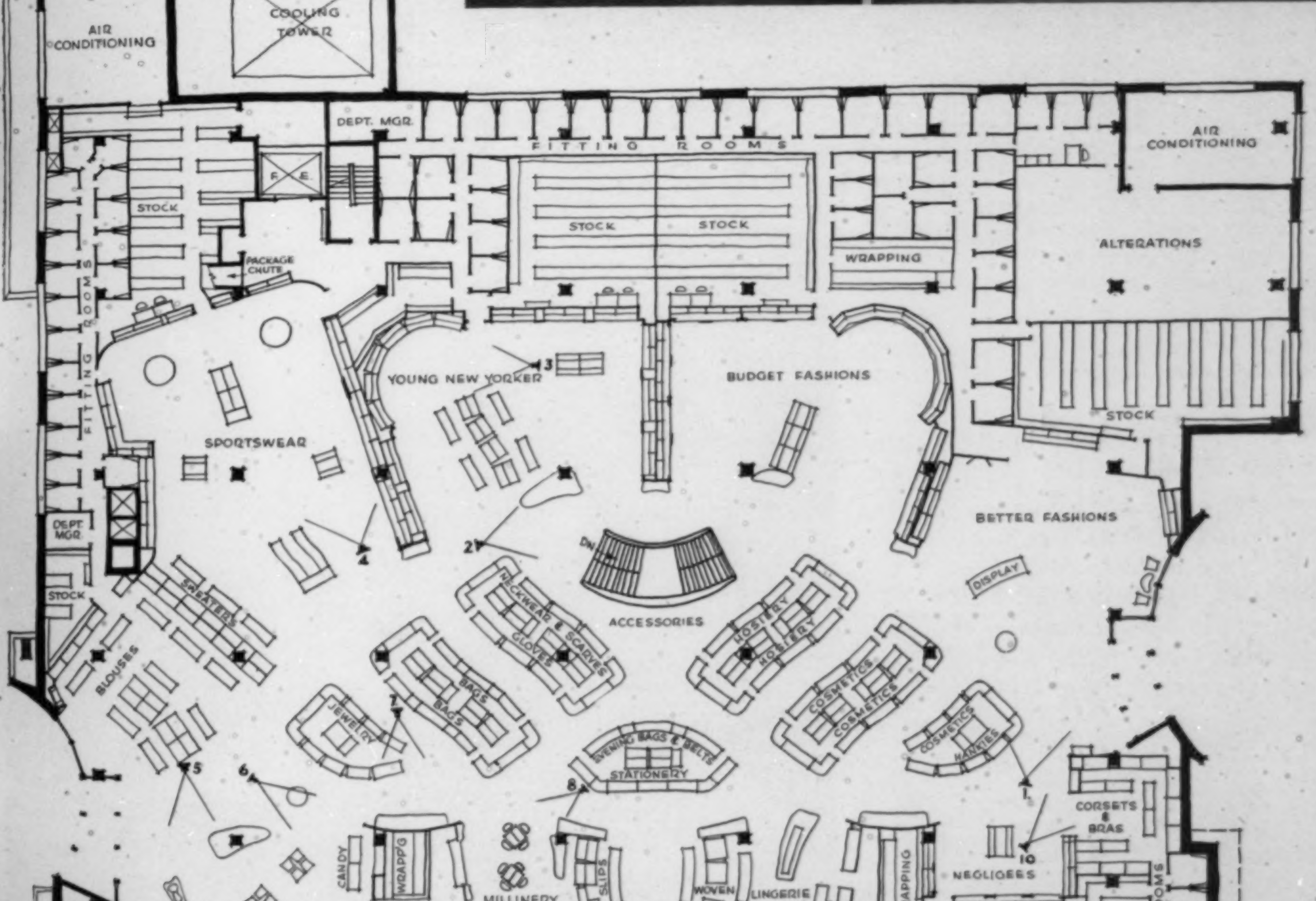
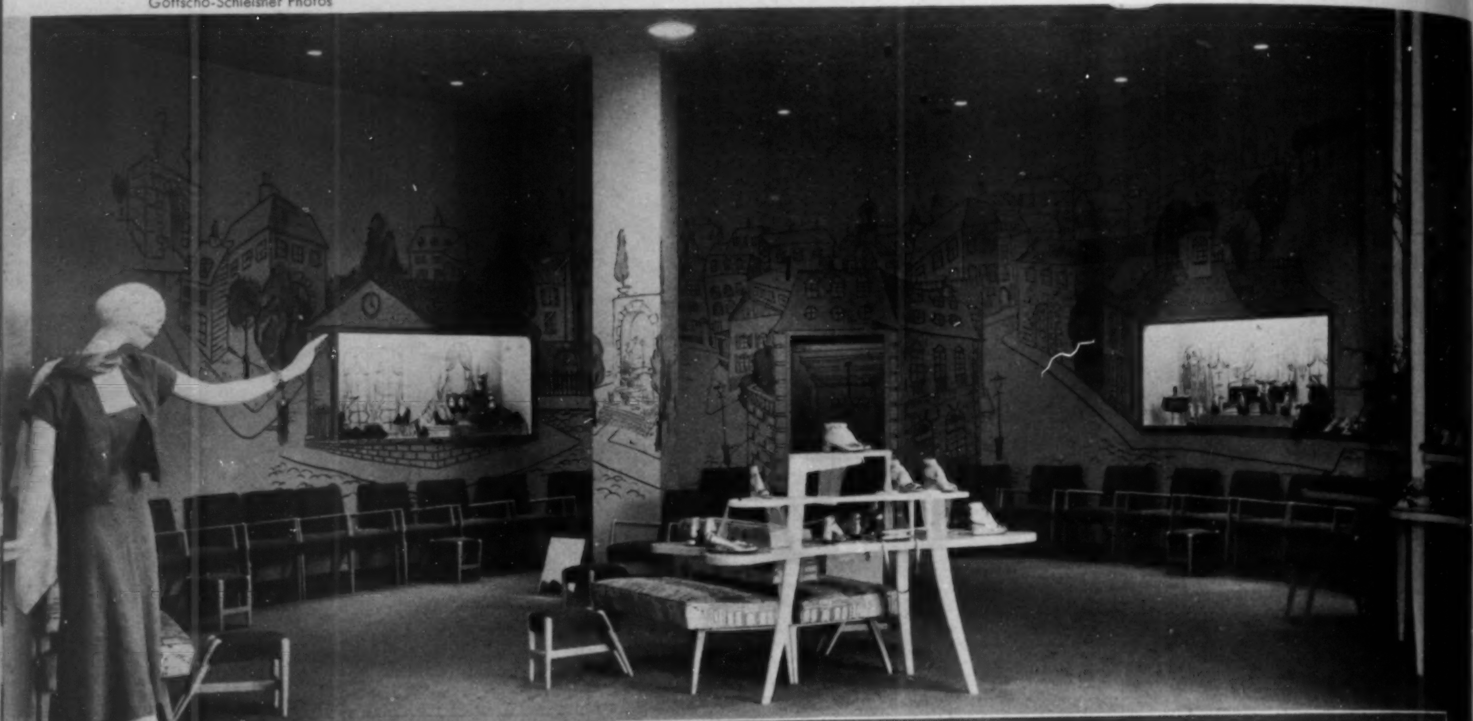


AIR CONDITIONING
COOLING TOWER
DEPT. MGR.
FITTING ROOMS
AIR CONDITIONING
STOCK
F. E.
STOCK
STOCK
PACKAGE CHUTE
WRAPPING
ALTERATIONS
FITTING ROOMS
3
YOUNG NEW YORKER
BUDGET FASHIONS
SPORTSWEAR
STOCK
DEPT MGR.
4
2
DN
BETTER FASHIONS
STOCK
SWEATERS
NECKWEAR & SCARVES
GLOVES
ACCESSORIES
HOSIERY
HOSIERY
DISPLAY
BLOUSES
BAGS
BAGS
COSMETICS
COSMETICS
JEWELRY
7
EVENING BAGS & BELTS
STATIONERY
COSMETICS
HANKIES
5
6
8
1
CORSETS & BRAS
10
CANDY
WRAPPG
TAILORED SLIPS
WOVEN
LINGERIE
WRAPPING
NEGLIGEES
MILLINERY
NIGHTWEAR
STOCK
PHONES
SHOES
STOCK
STOCK
9
FITTING ROOMS
DEPT MGR
KITCHEN
11
STOCK
TEA ROOM
0
10
20
30
40
12
MAIN FLOOR

Gottscho-Schleisner Photos



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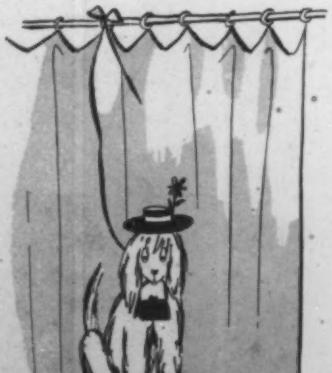
*The interior decorating of the store was executed by Edgar Tallman, store decorator, and head of Lord and Taylor's interior display department. A series of spontaneous amusing sketches, by Warren Franklin of the interior display department, adorns the curtains of the fitting rooms*



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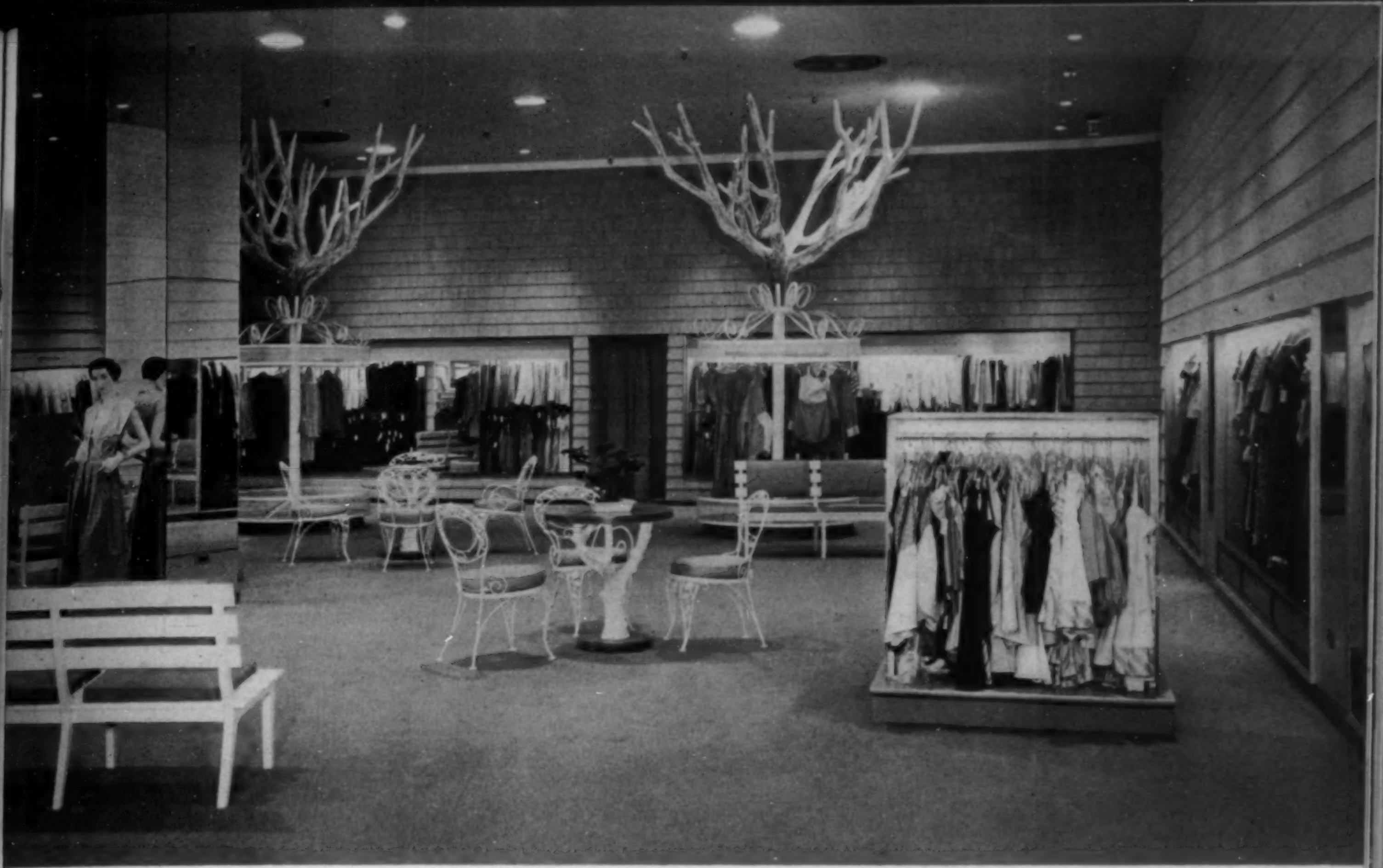
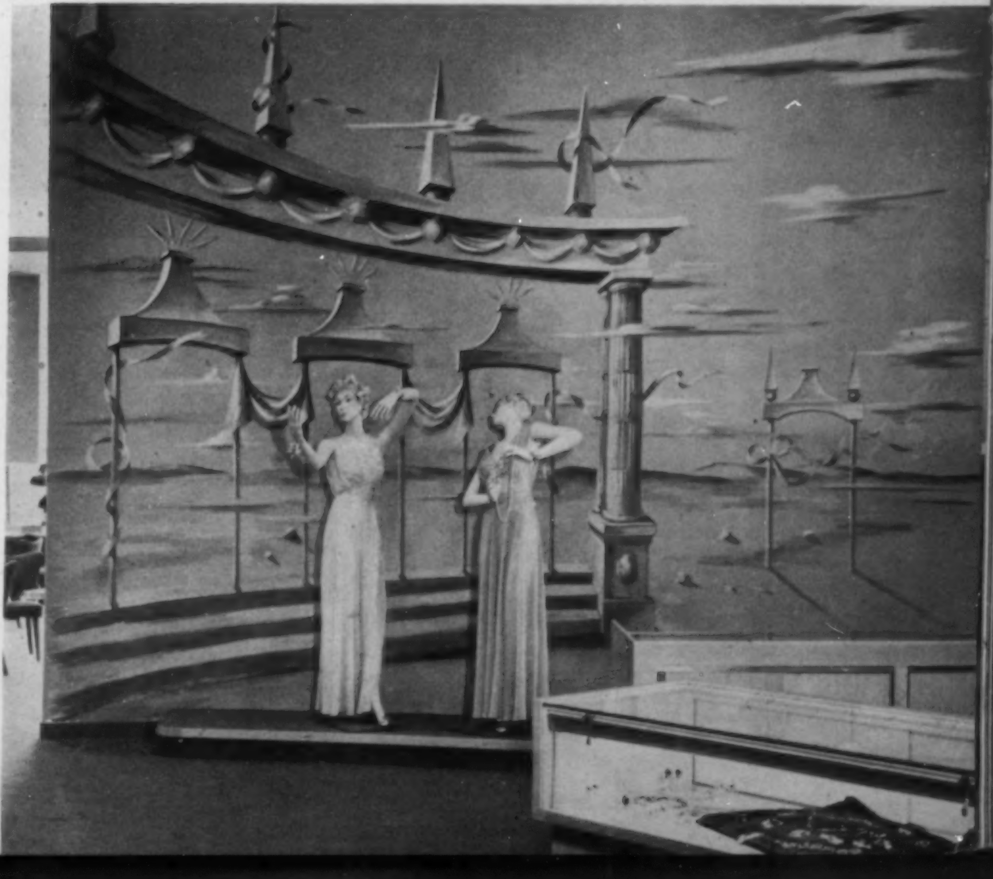
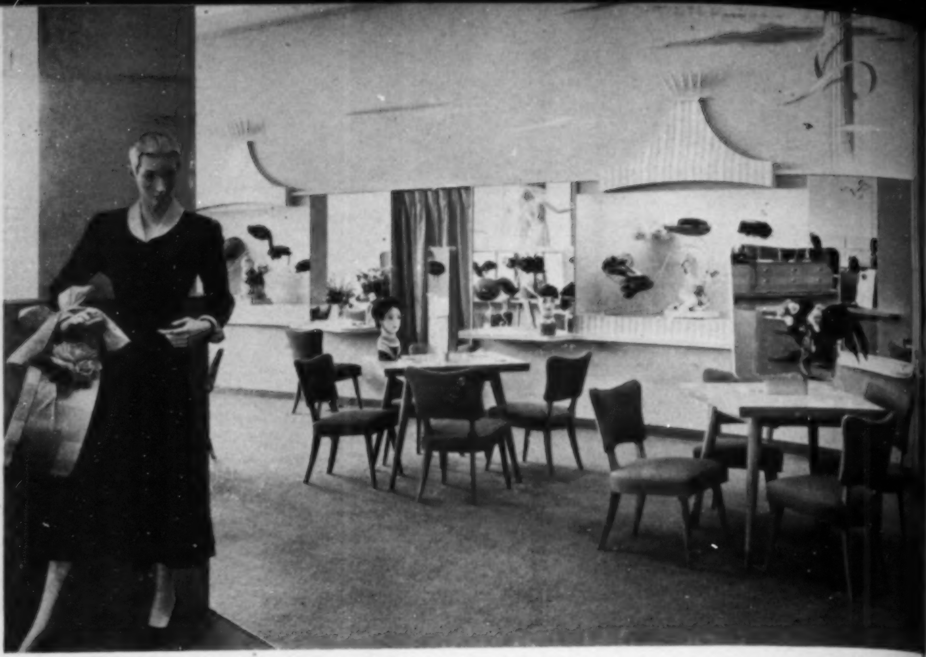


4

*Page opposite, the gay Parisian street-scene mural enlivens the shoe department, and the painted drape enframement of the candy display graces the turn of a wall. Above, white clapboards, yellow shingles and rustic furniture give an outdoor air to the display of sports clothes. Below, dream-fantasy architecture painted on the curved wall as a background for night-robed mannequins. one of James Patton's attractive murals*

7





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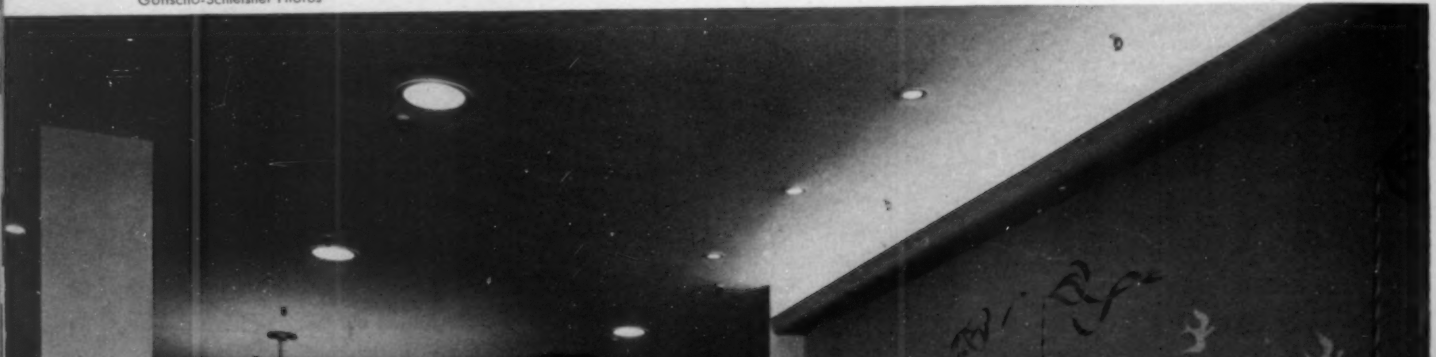
Gottscho-Schleisner Photos



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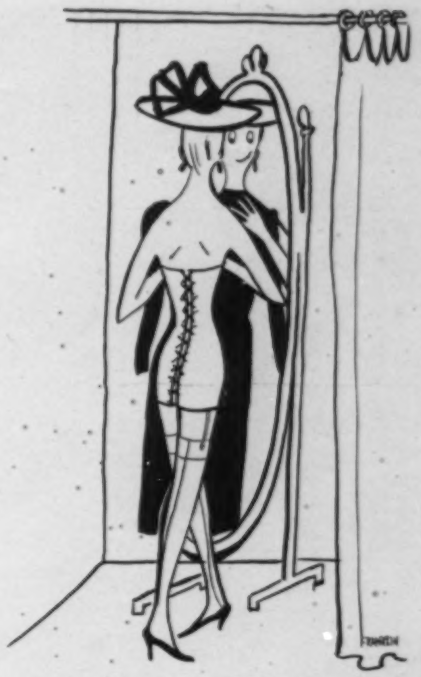
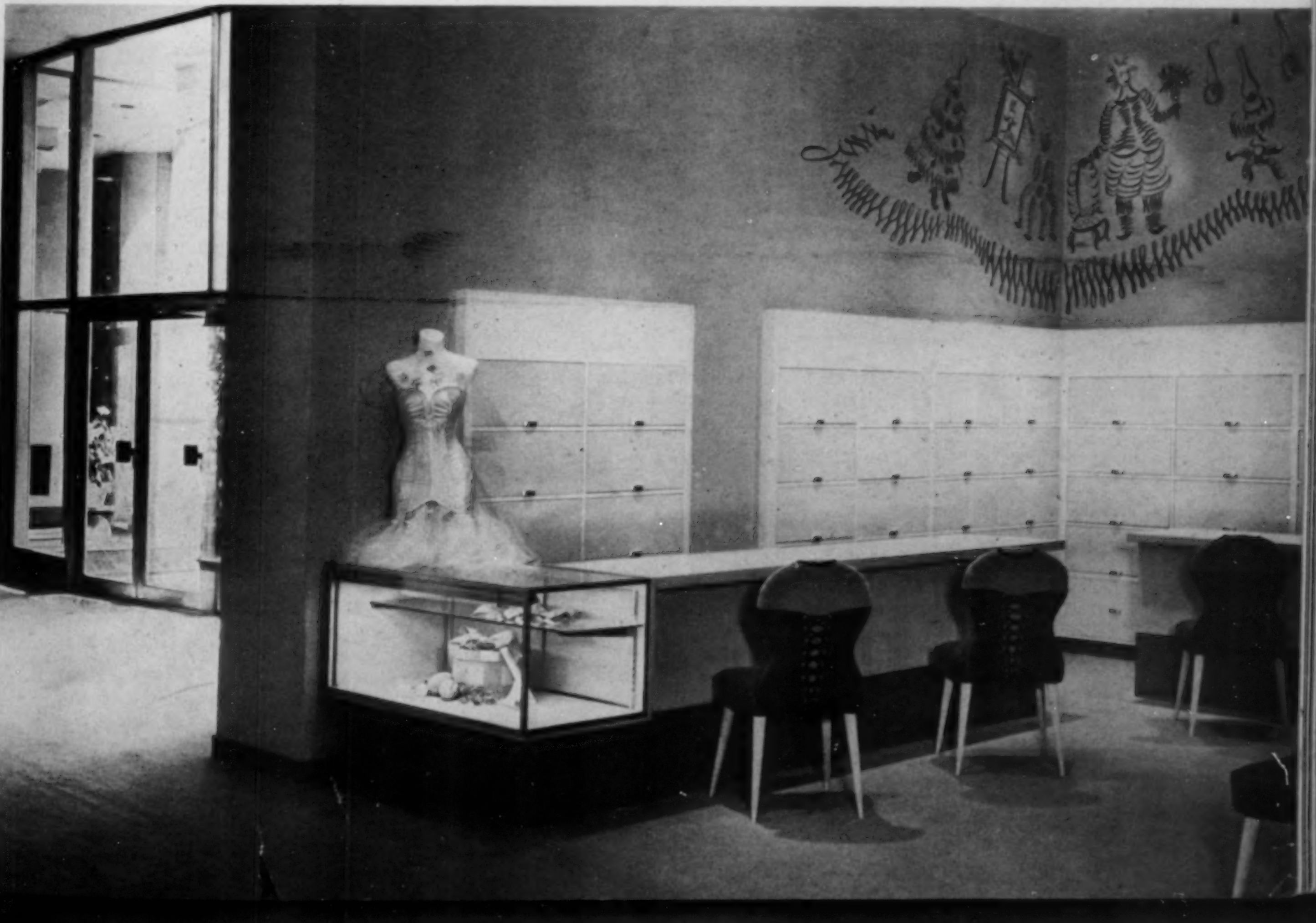
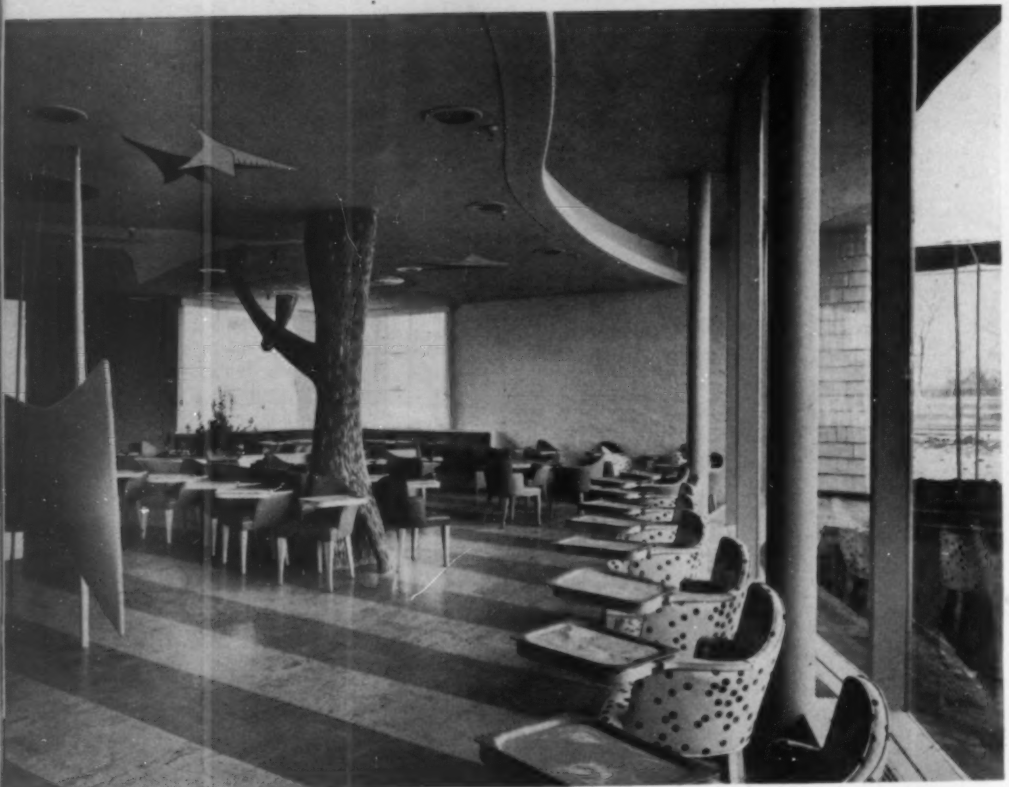
The quality of the interior design, which is orderly but free, and uses color and light to such good effect, produces a psychological lift in the spirits of all who enter the store. There is a light, sure touch in the decorations which are subtly amusing and never obtrusive, and shoppers are put in a pleasant frame of mind by the bright colorfulness evident throughout. Both natural and artificial light are used to create this bright, cheerful atmosphere, and light is always concentrated on the merchandise. Racks of garments are brilliantly lighted so that the colors of the dresses and hats are part of the decorative effect. The floor is softly carpeted in a pleasing taupe which is neutral and blends with the light pastel shades of the walls and fixtures. *M. K., Jr.*



*Opposite page, above, hats in the brilliant niches are held by amusing cupids. Extensive stock is accessible to the clerks through the draped door. Opposite, below, lingerie shelf-doors are painted to simulate beveled construction and are interlaced with painted ribbons and flowers. Yellow stool tops add a bright note of color. Below, the corset department at the left of the south entrance features its laced-corset chairs in brown and pink with appropriately upholstered fronts*





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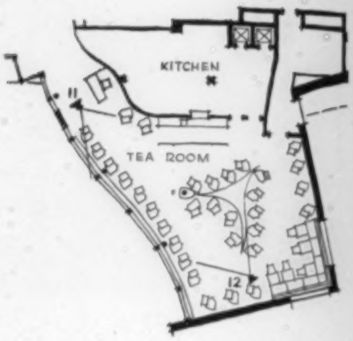
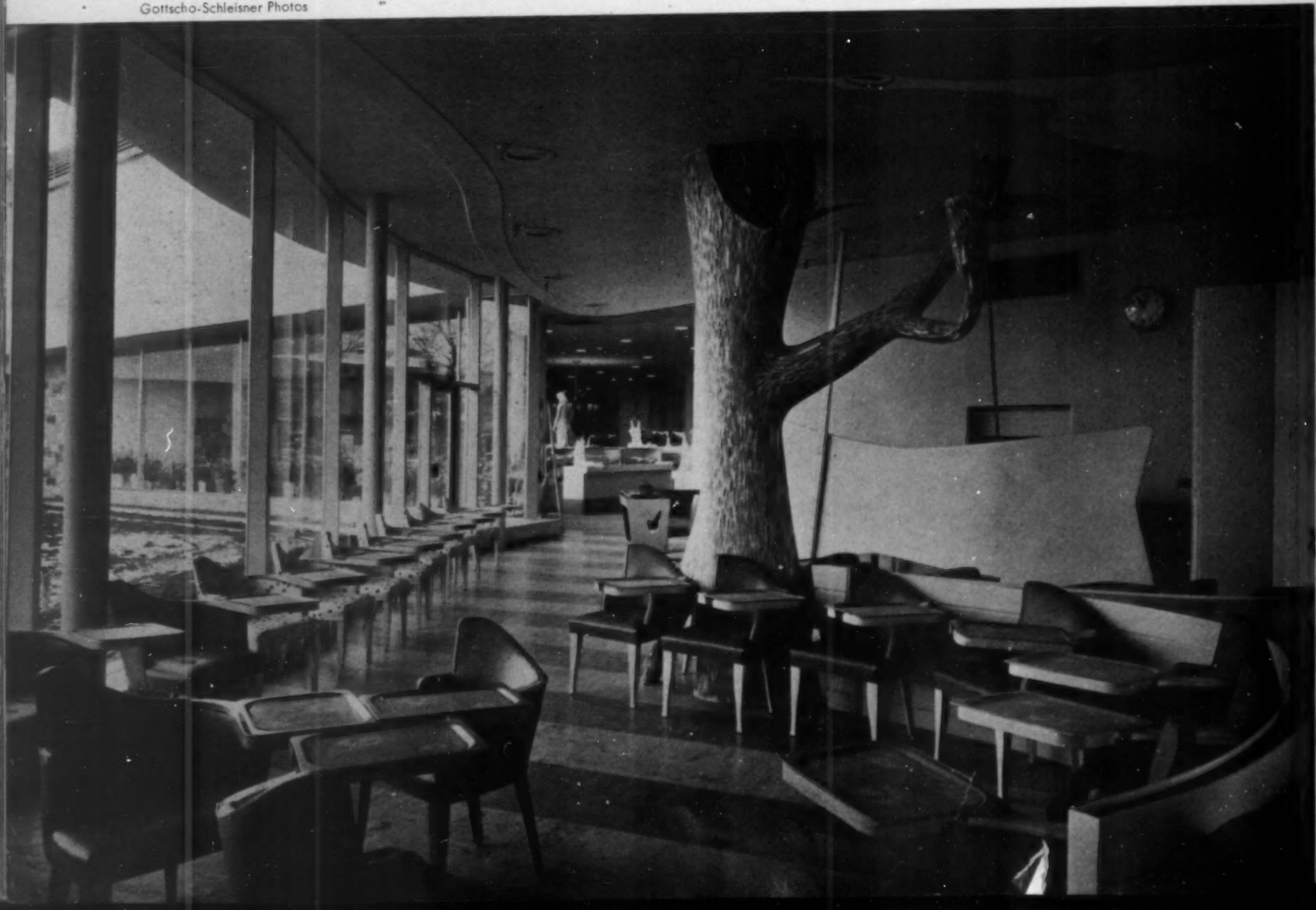


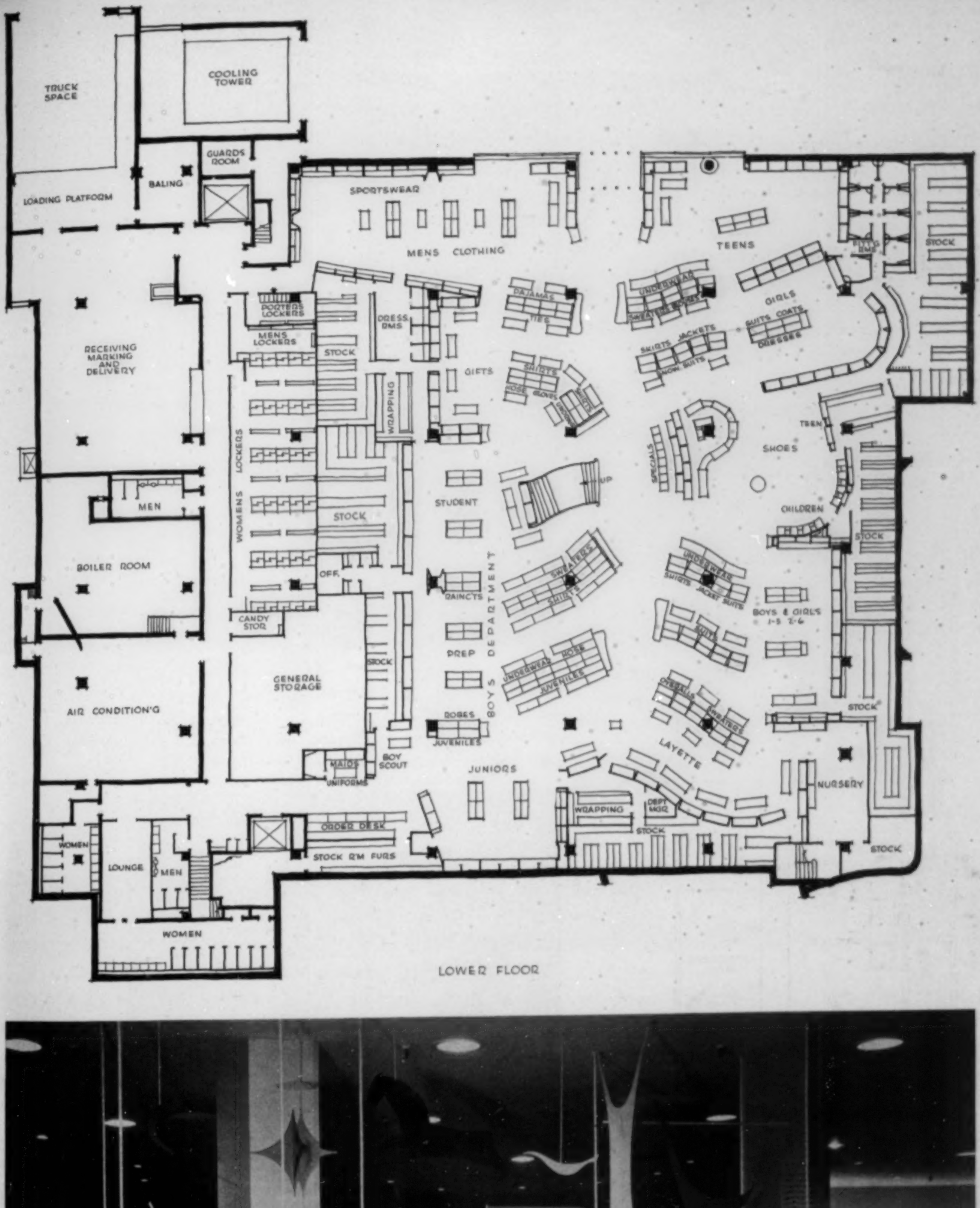
TEA ROOM PLAN

*The popular tearoom, flooded with daylight and sunshine, is made colorful by upholstery of blue, chartreuse and raspberry, with a floor of striped terrazzo. Supplementary light, when necessary, is supplied by both indirect coves and diffusing downlights. Opposite, the plan of the lower floor shows its main entrance to the east. Directly opposite the foot of the stairs the toy counter is painted as bright children's blocks, and above are clever cut-outs of favorite animals*

12

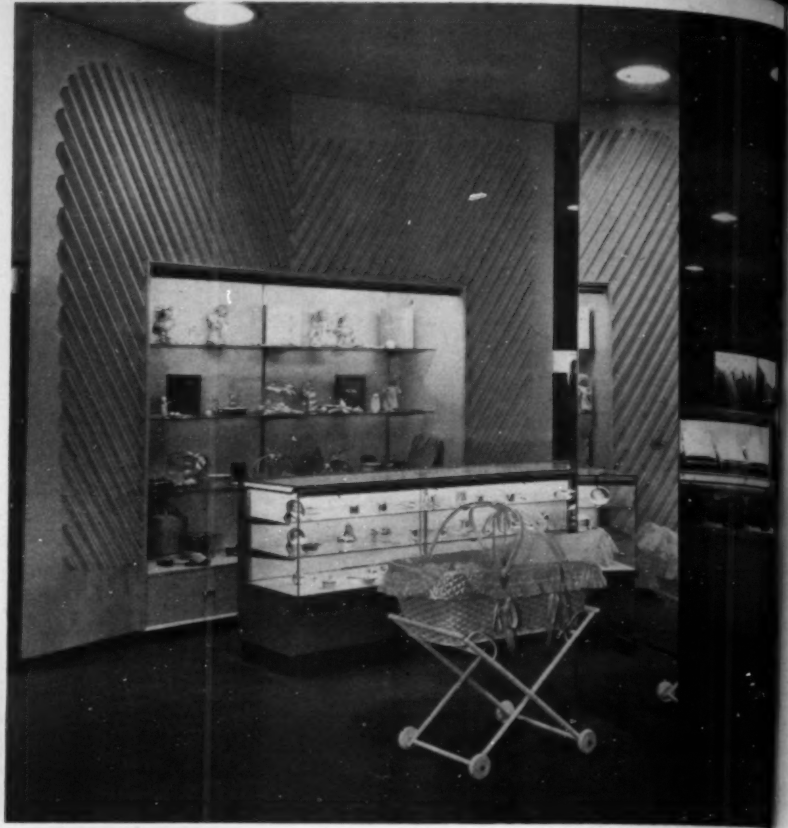
Gottscho-Schleisner Photos




TRUCK SPACE
COOLING TOWER
GUARDS ROOM
LOADING PLATFORM
BALING
SPORTSWEAR
MENS CLOTHING
TEENS
FITT'G RMS
STOCK
PORTERS LOCKERS
MENS LOCKERS
DRESS RMS
PAJAMAS
TIES
UNDERWEAR
SWEATERS BLOUSES
GIRLS
SUITS COATS
DRESSES
SKIRTS JACKETS
SNOW SUITS
RECEIVING MARKING AND DELIVERY
STOCK
GIFTS
SHIRTS
HOSE GLOVES
WRAPPING
SPECIALS
TEEN
SHOES
WOMENS LOCKERS
UP
STUDENT
CHILDREN
MEN
STOCK
BOILER ROOM
OFF.
SWEATERS
SHIRTS
UNDERWEAR
SHIRTS JACKET SUITS
RAINC'TS
BOYS DEPARTMENT
BOYS & GIRLS 1-3 2-6
CANDY STOR.
SUITS
STOCK
PREP
UNDERWEAR HOSE
JUVENILES
GENERAL STORAGE
AIR CONDITION'G
ROBES
JUVENILES
OVERALLS
SWEATERS
STOCK
LAYETTE
BOY SCOUT
MAIDS
UNIFORMS
JUNIORS
NURSERY
WRAPPING
DEPT MGR
ORDER DESK
STOCK
STOCK
STOCK R'M FURS
WOMEN
LOUNGE
MEN
WOMEN

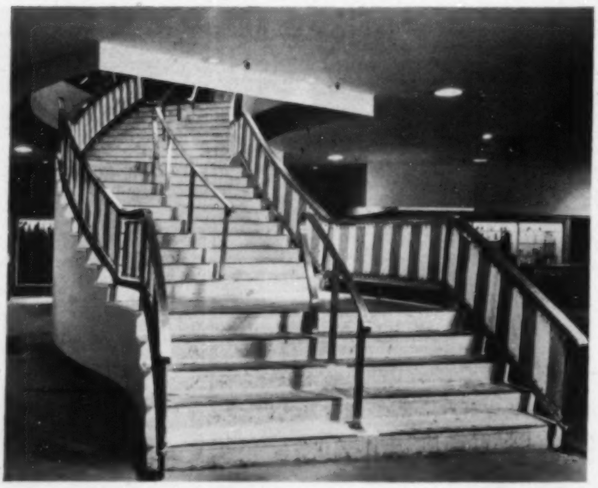
LOWER FLOOR

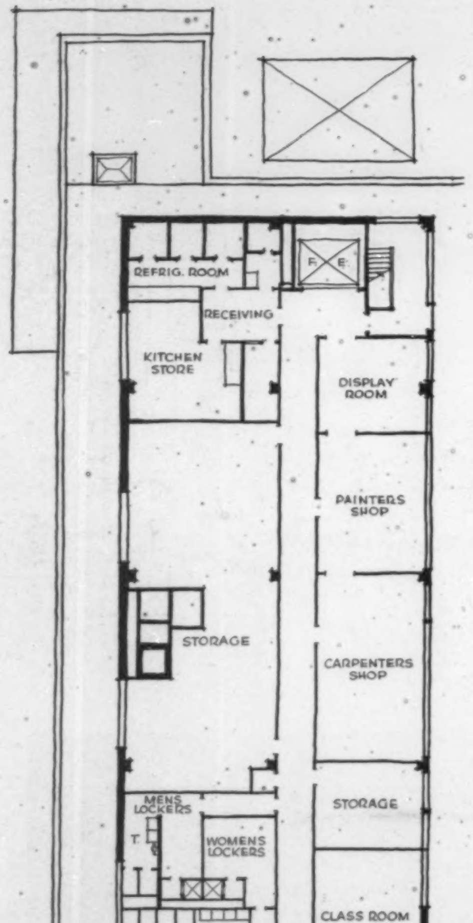
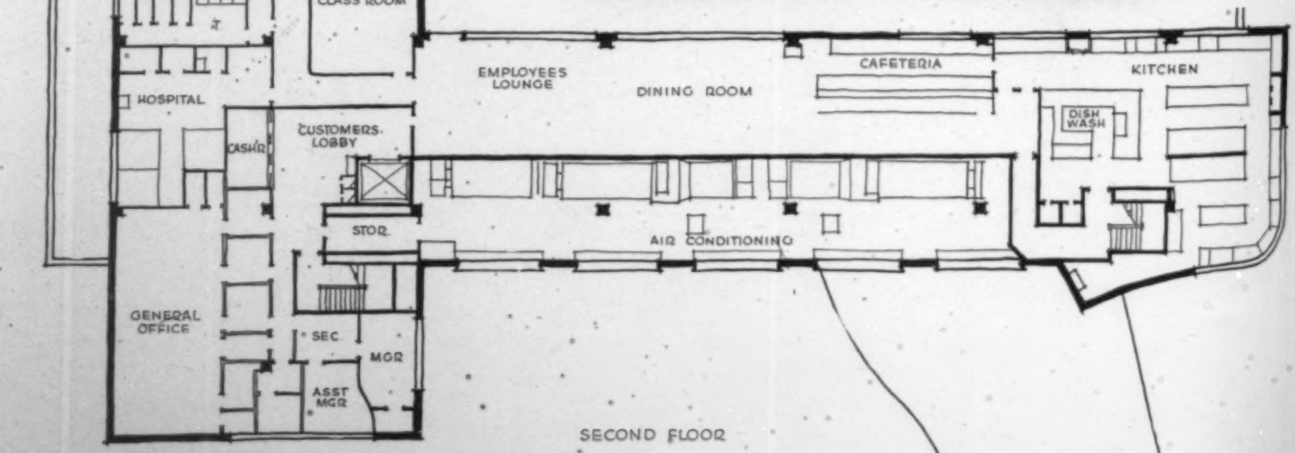
*The employees' lounge, dining room and cafeteria open on to the wide expanse of the roof deck (omitted from the plan diagram below) which is available to them in summer. The kitchen serves both the customer tearoom and the employees' dining room. Expansion of the store is possible by converting the roof deck area to another selling floor, if necessary.*



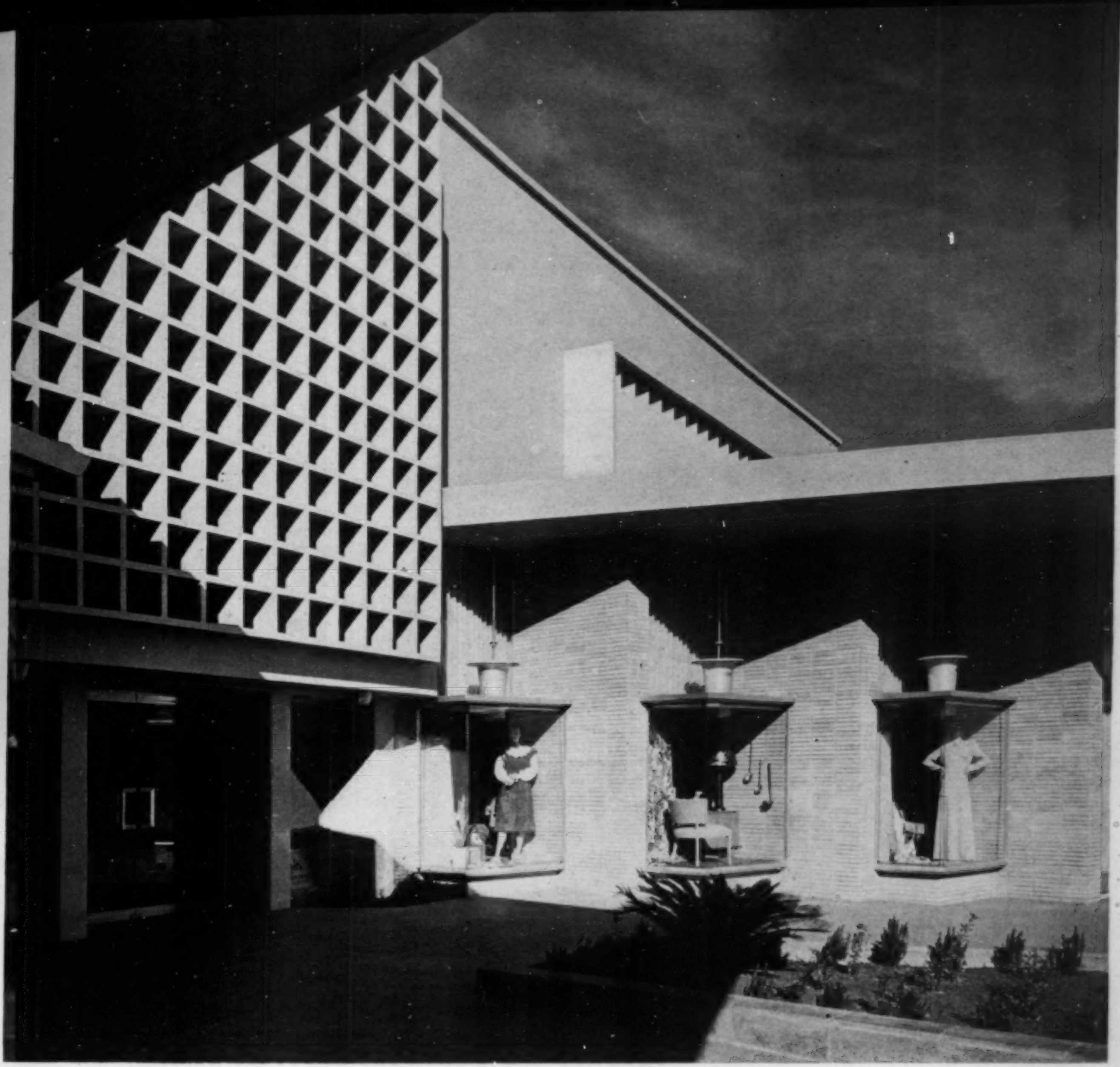
Gottscho-Schleisner Photos

*Above, an interesting treatment of the layette department display. Mirror-enclosed columns increase the sense of spaciousness. Below, the curving stair connecting the two selling floors has ingeniously laced canvas sides rather than conventional balusters. Rails are polished brass*





REFRIG. ROOM
F. E.
RECEIVING
KITCHEN STORE
DISPLAY ROOM
PAINTERS SHOP
STORAGE
CARPENTERS SHOP
MENS LOCKERS
T.
WOMENS LOCKERS
STORAGE
CLASS ROOM
T
HOSPITAL
CASH'R
CUSTOMERS LOBBY
EMPLOYEES LOUNGE
DINING ROOM
CAFETERIA
KITCHEN
DISH WASH
STOR.
AIR CONDITIONING
GENERAL OFFICE
SEC.
MGR
ASST MGR

SECOND FLOOR

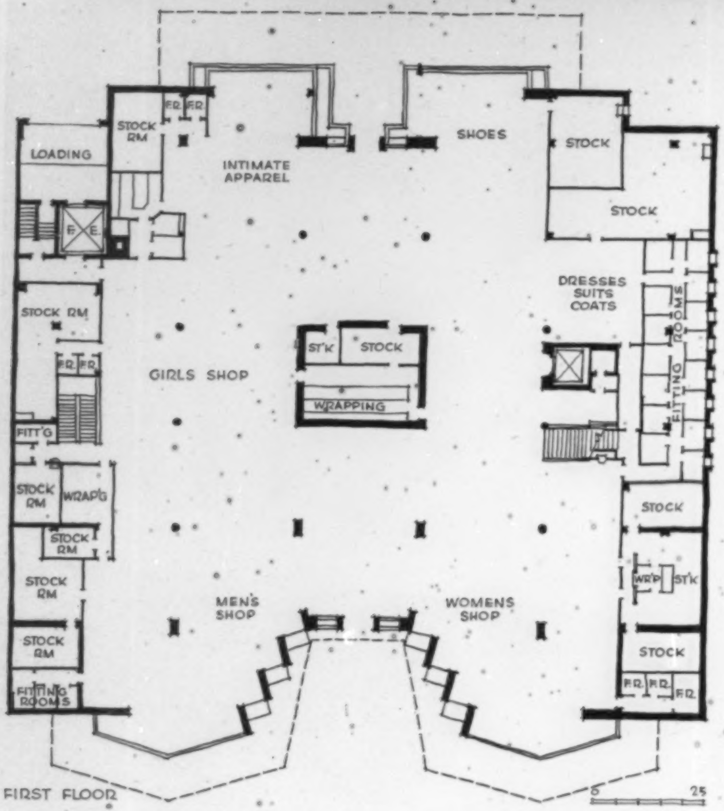


Julius Shulman Photo

# BULLOCK'S PALM SPRINGS STORE, CALIFORNIA

***Walter Wurdeman and Welton Becket, A.I.A., Architects***

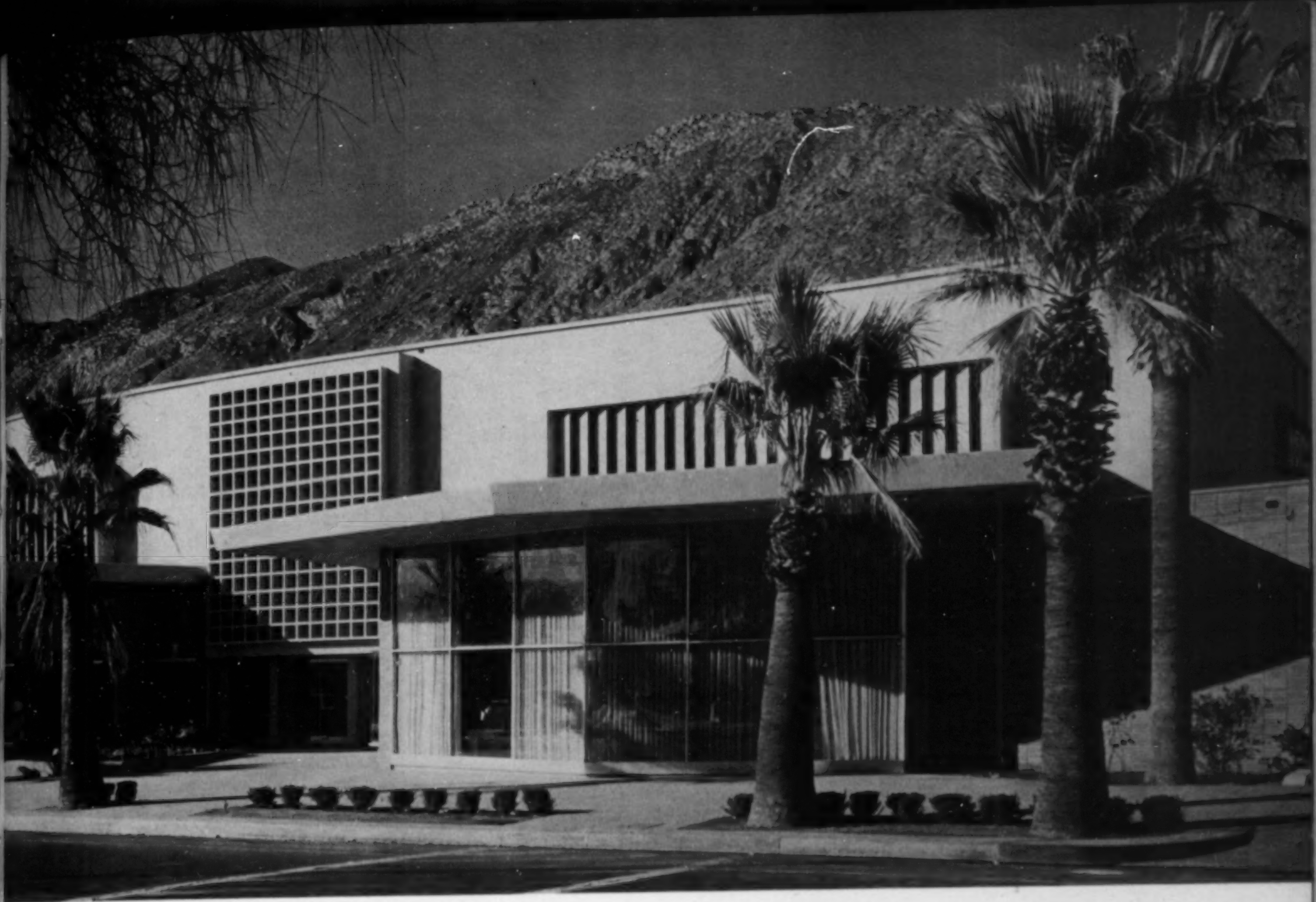
This drive-in department store, located in a winter resort, is another — and very different — example of the trend toward large-scale decentralized shopping units. Although the principal entrance for the automobile trade is on a rear parking court, design interest has been centered, perhaps by force of habit, on the sidewalk approach. Spaciousness, sunlight and hospitality are more important here than the token displays of seasonal merchandise. — *M. K., Jr.*


STOCK RM
FR FR
LOADING
INTIMATE APPAREL
SHOES
STOCK
STOCK
F.E.
DRESSES SUITS COATS
FITTING ROOMS
STOCK RM
FR FR
GIRLS SHOP
ST'K
STOCK
WRAPPING
FITT'G
STOCK RM
WRAP'G
STOCK RM
STOCK RM
STOCK
WR'P
ST'K
MEN'S SHOP
WOMENS SHOP
STOCK RM
STOCK
FITTING ROOMS
FR FR FR
FIRST FLOOR
5
25

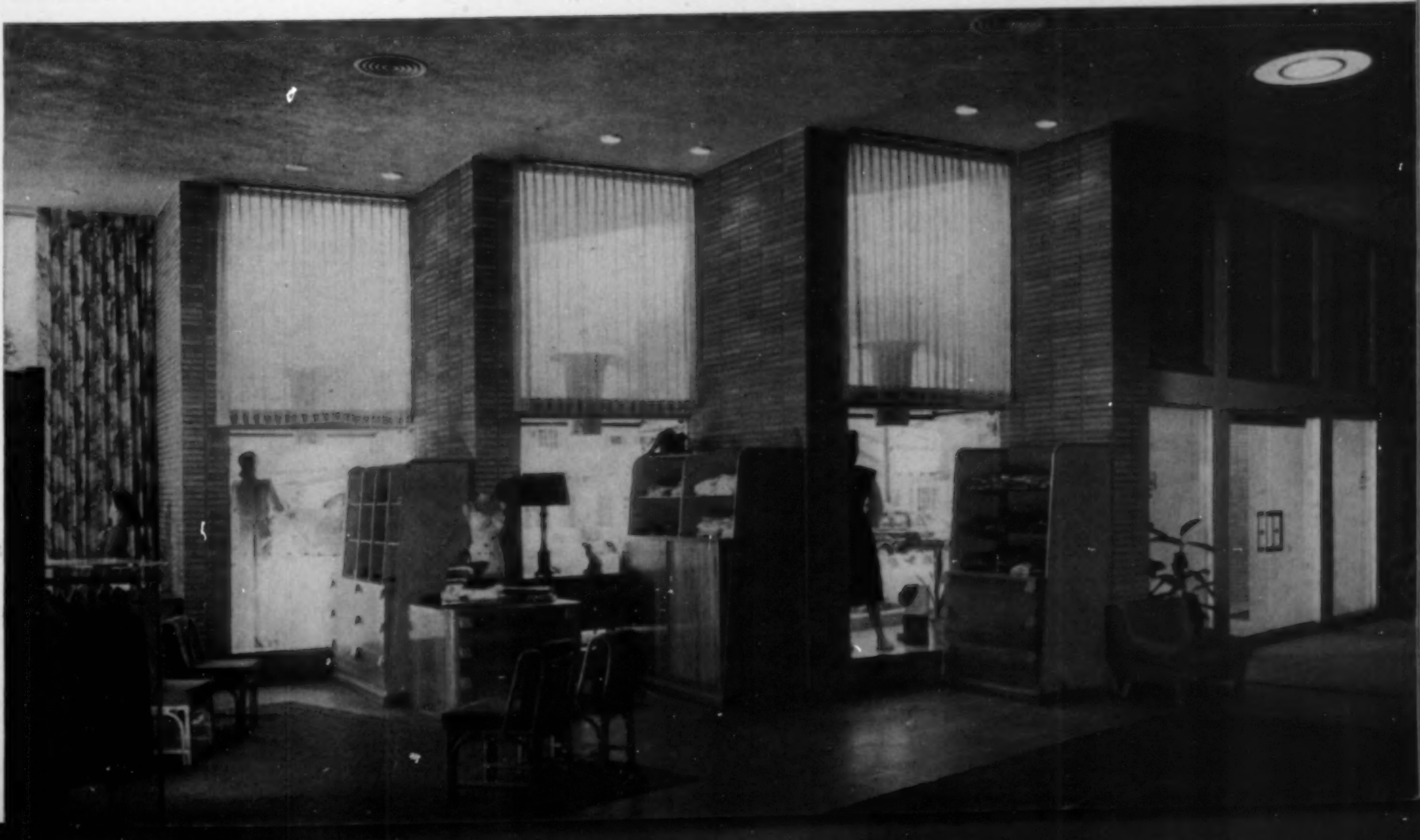
Julius Shulman Photos

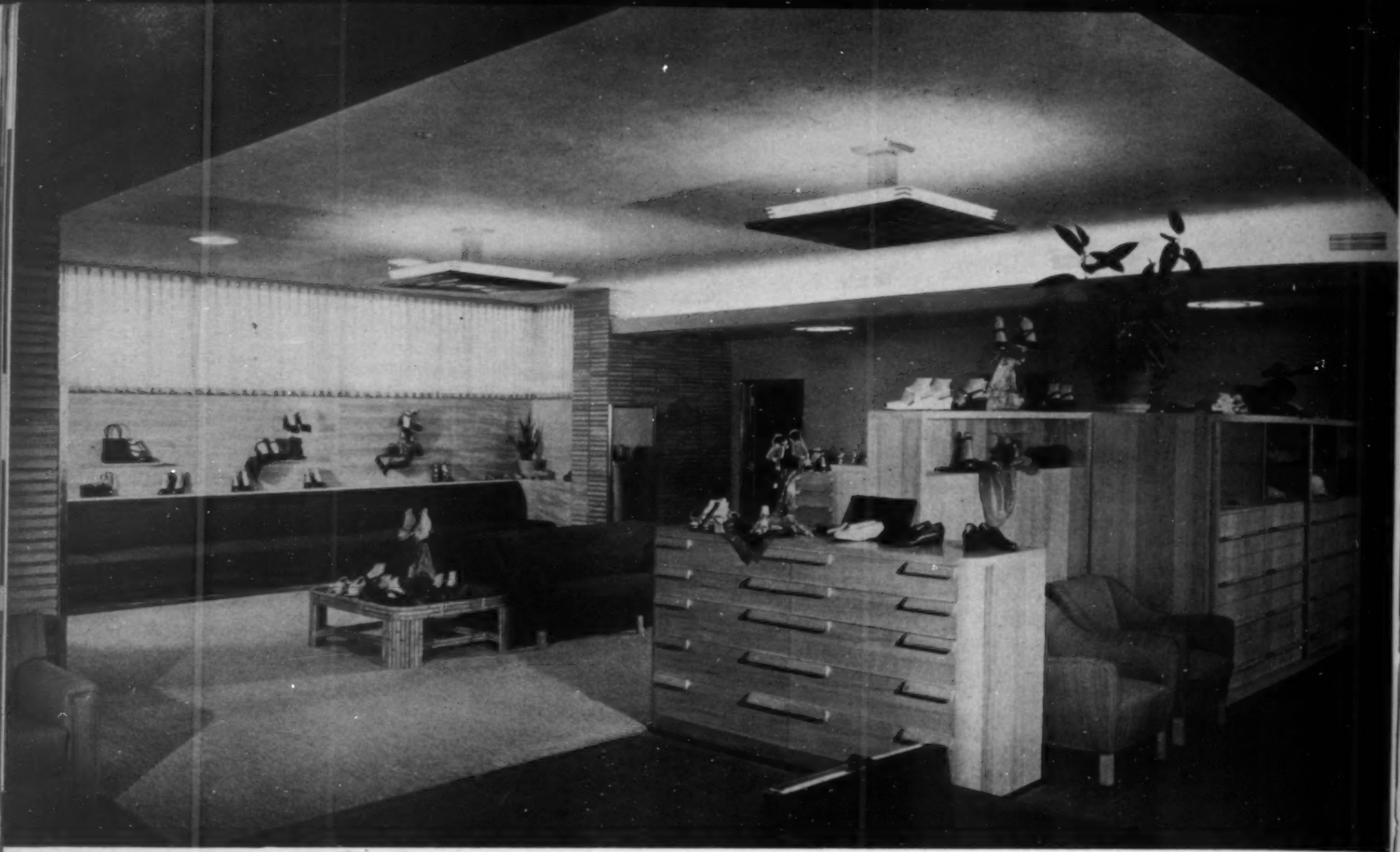
**The store's bold planes and masses, bathed in sunlight, stand out against a rugged setting of mountains and palm trees. Symmetrically placed wings enclose an attractive entrance patio. The vertical louvers of the second floor are designed for sun protection to lessen the air conditioning load. Materials and colors, outdoors and in, are in harmony with the store's shopping environment.**
**— *M. K., Jr.***

*Wide roof projections shield the large show window bays from the hot sun, and colorful curtains provide supplementary light control*

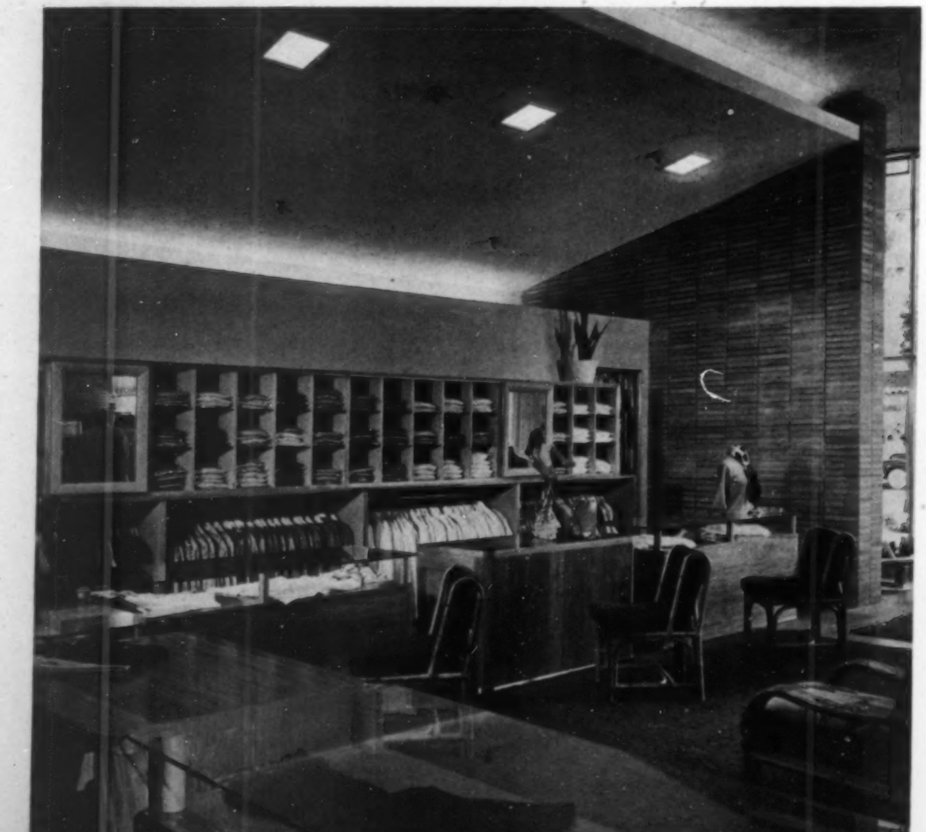


*The heating and air conditioning system is of the "reverse cycle" type having three freon compressors equipped with water-cooled condensers; three vertical shell and tube water chillers; circulating pumps, deep well pump, etc. Ten air conditioning units are placed above the suspended ceilings of the store and are used for both cooling and heating*

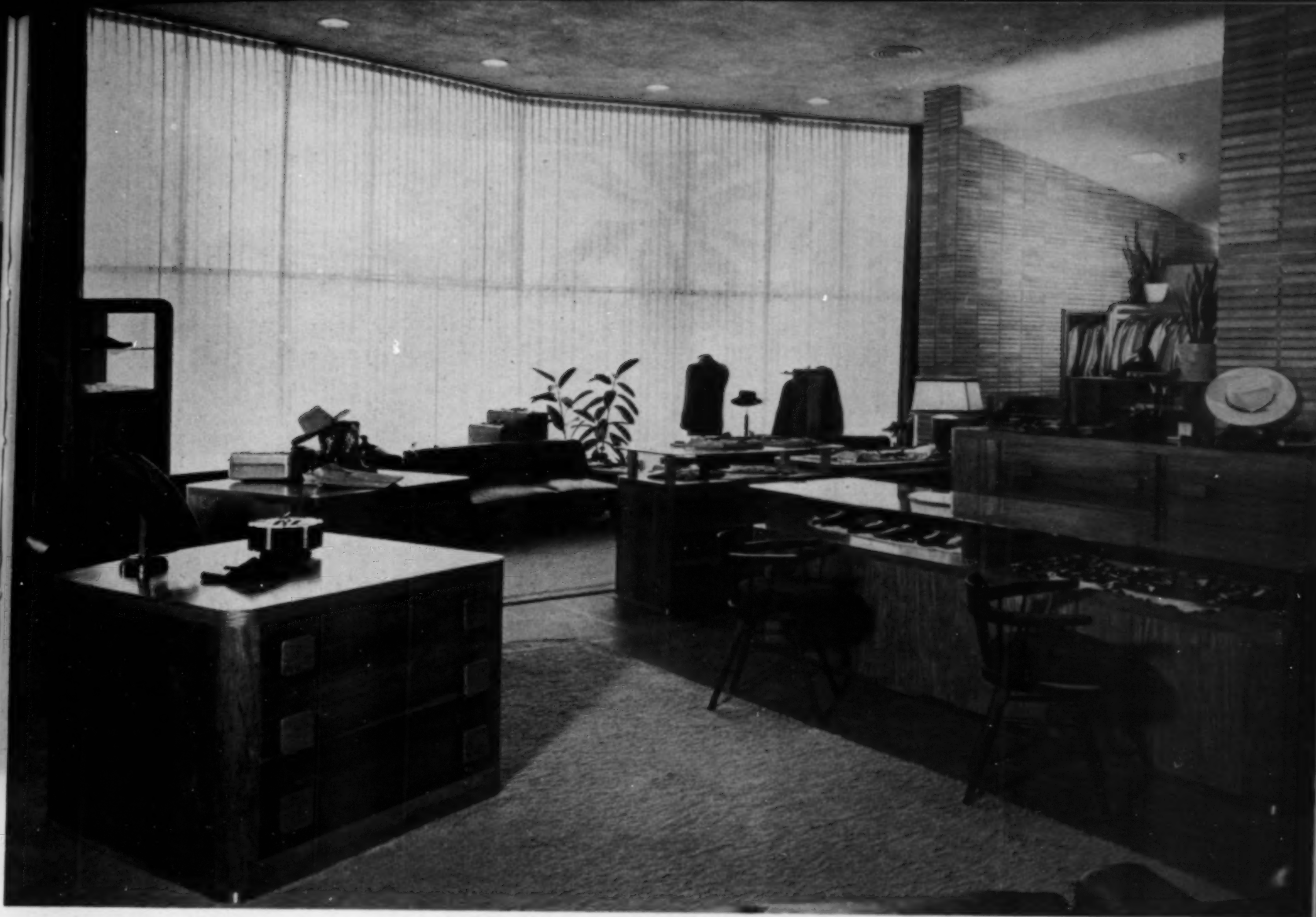




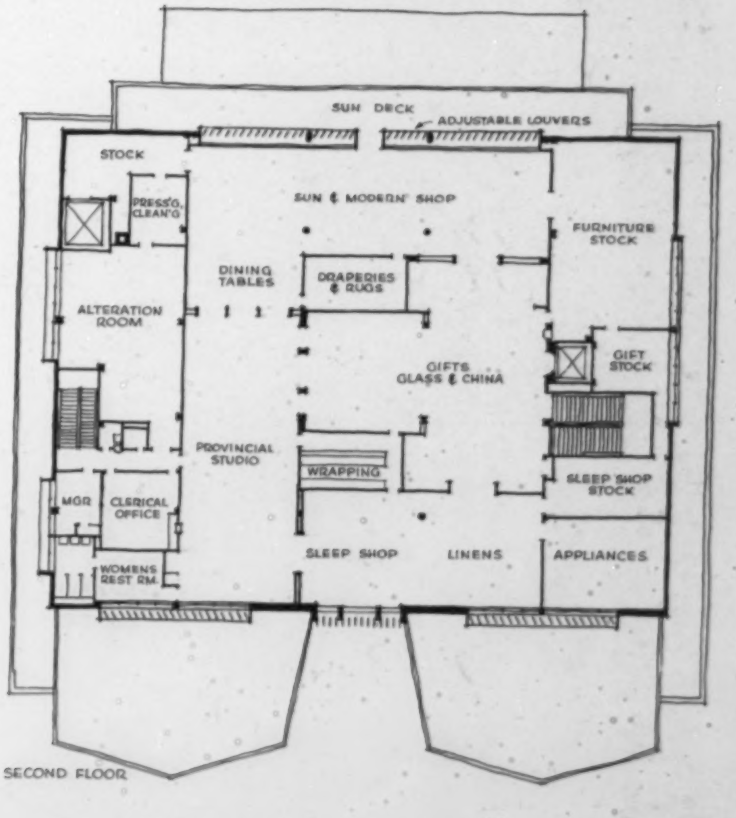
Julius Shulman Photos



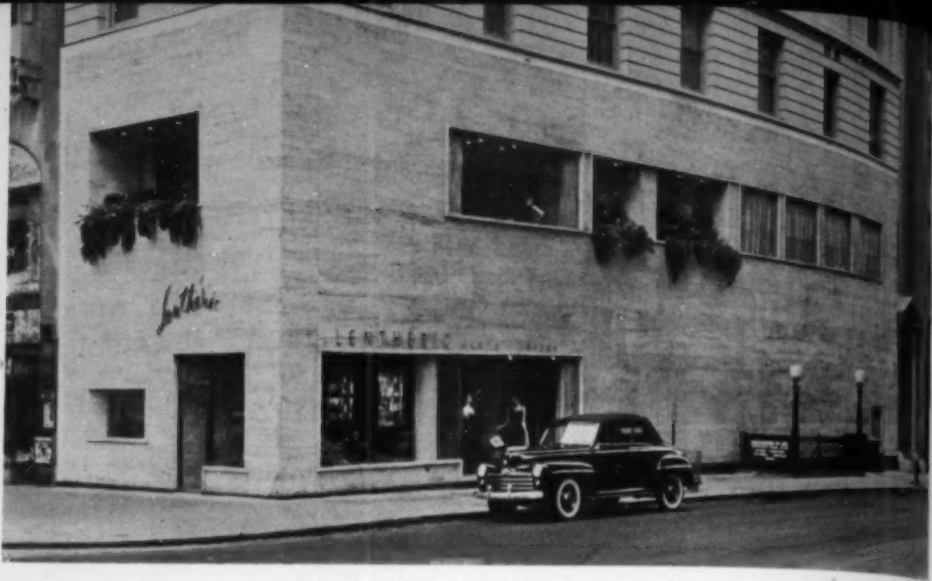
Expert planning of sales departments gives each an individual character and distinction in spite of the absence of dividing partitions. Cabinet work and lighting are smoothly handled; sales backgrounds are gay and colorful. Note that the merchandising program — apparel and home furnishings — is keyed to holiday demands. Low counters and open planning permit use of a skeleton crew in slack season. There is no attempt to include all the shopping goods shown in a complete department store. — *M. K., Jr.*



*The use of small movable display and storage cases instead of long counters permits flexibility and easy reorganization of sales areas. Display cases are spotlighted from the ceiling rather than lighted from within. Wood is mostly natural and bleached narra*

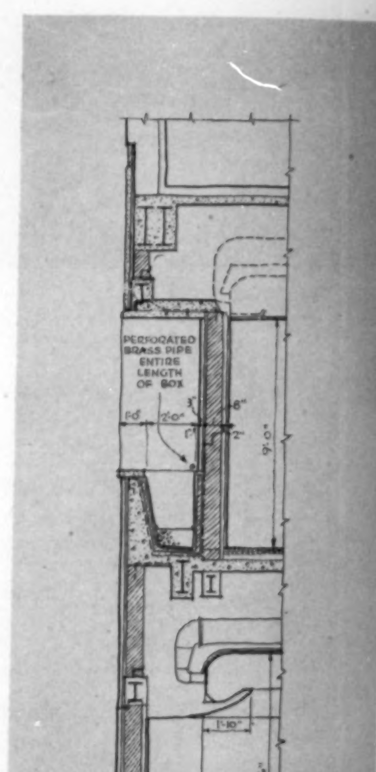

SUN DECK
ADJUSTABLE LOUVERS
STOCK
PRESS'G. CLEAN'G
SUN & MODERN SHOP
FURNITURE STOCK
DINING TABLES
DRAPERIES & RUGS
ALTERATION ROOM
GIFTS GLASS & CHINA
GIFT STOCK
PROVINCIAL STUDIO
WRAPPING
SLEEP SHOP STOCK
MGR
CLERICAL OFFICE
SLEEP SHOP
LINENS
APPLIANCES
WOMENS REST RM.
SECOND FLOOR

*Four floors of remodeled seven-story building directly serve the public. Exterior is faced with American travertine, with recessed planting boxes (section below) to add floral notes according to the season*


Lenthéric
LENTHÉRIC

Ben Schnall Photos

# FOUR FLOORS OF


PERFORATED BRASS PIPE ENTIRE LENGTH OF BOX
6"
1'-0"
2'-0"
3"
1"
2"
9'-0"
1'-10"
10'-6"
0 1 2 4'

*SALON LENTHÉRIC,*

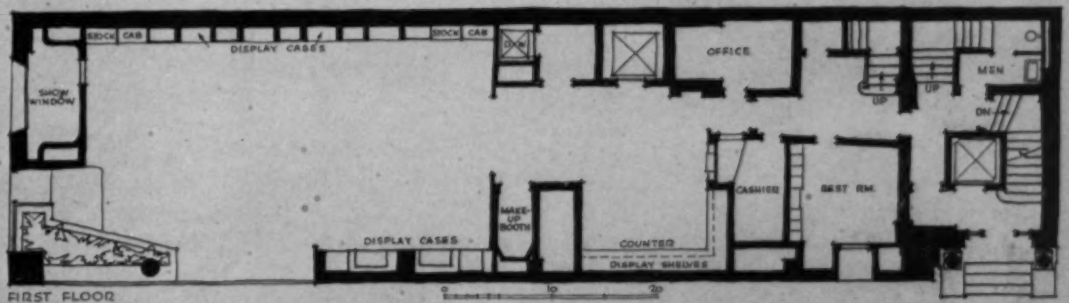
*New York City*

**Harrison & Abramovitz, Architects**

**Ruby Ross Wood, Interior Decorator**

**Lighting by Feder**

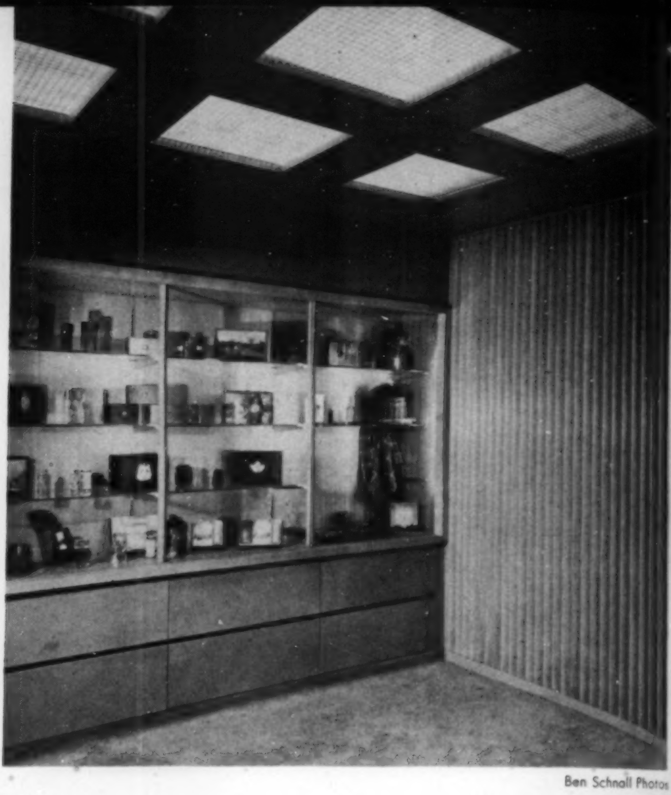
# HIGH-FASHION SELLING


STOCK CAB
DISPLAY CASES
STOCK CAB
SHOW WINDOW
DW
OFFICE
UP
UP
MEN
DN
CASHIER
REST RM.
MAKE-UP BOOTH
DISPLAY CASES
COUNTER
DISPLAY SHELVES
0
10
20

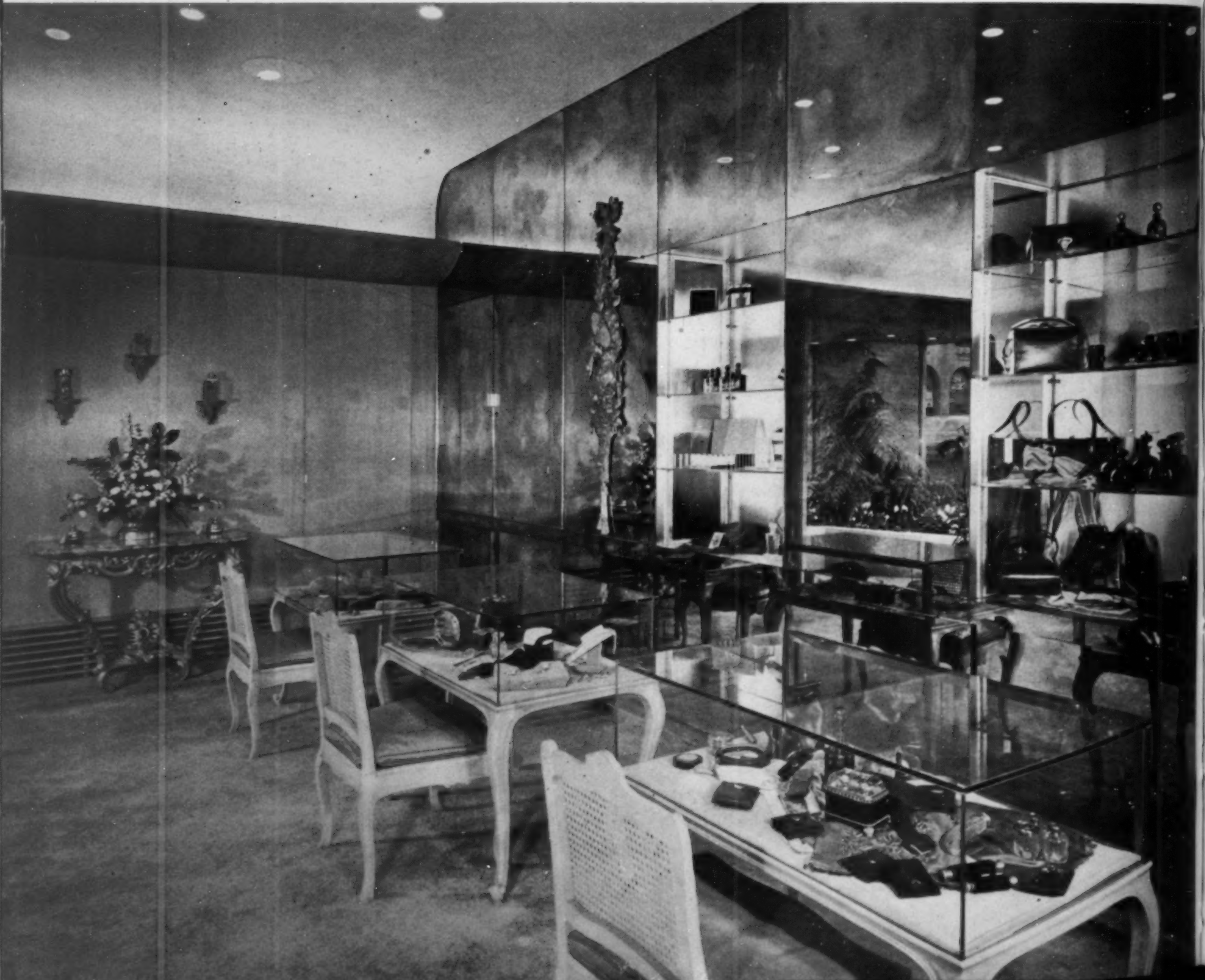
FIRST FLOOR

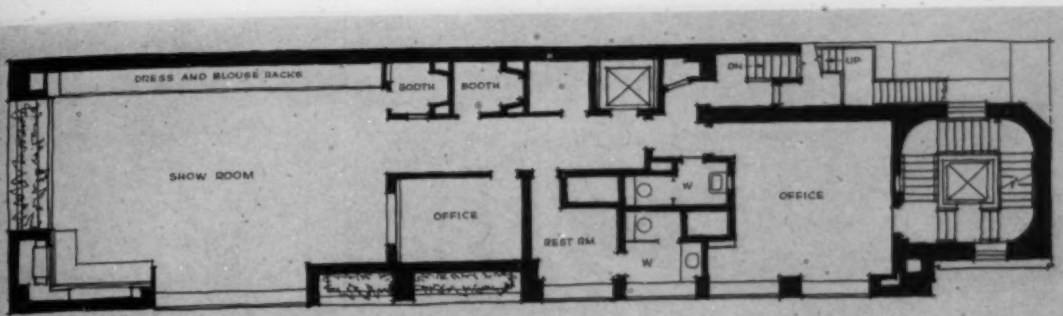
THE formal, trade-mark approach to "exclusive" retailing here reappears in a new and refreshing solution. High-fashion goods and services are given appropriate sales backgrounds, lighting and equipment, though the goods and services cover an abnormally wide range. In this salon, featuring the Lenthéric perfume, there is a considerable range of women's trinkets and clothing items, and even a men's shop. From a rather severely conservative exterior, relieved by open show windows, the note changes, following the client's wish that the salon have "a mood of quiet tranquillity, with the odor of fresh flowers and sweet-scented greens," and that it be flooded with sunshine. So the lighting tends toward a warm rosy glow designed to make the customer feel beautiful, though in the Men's Corner there is a shift to something a bit more rugged. First floor merchandise, besides the perfume, includes accessories and jewelry; the second floor is devoted to women's clothes, the third and fourth to the hair dressing salon. The shop is entirely air conditioned. (See section opposite.)

*Right: Men's corner has luminous egg-crate ceiling with high-intensity slimline lamps to simulate outdoor brilliance. Walls are honey-colored leather, carpeting is beige color. Below: First floor interior in the Salon Lenthéric, with smoky antiqued mirrors and recessed display niches, each with vertical slimline tubes recessed behind a new plastic*



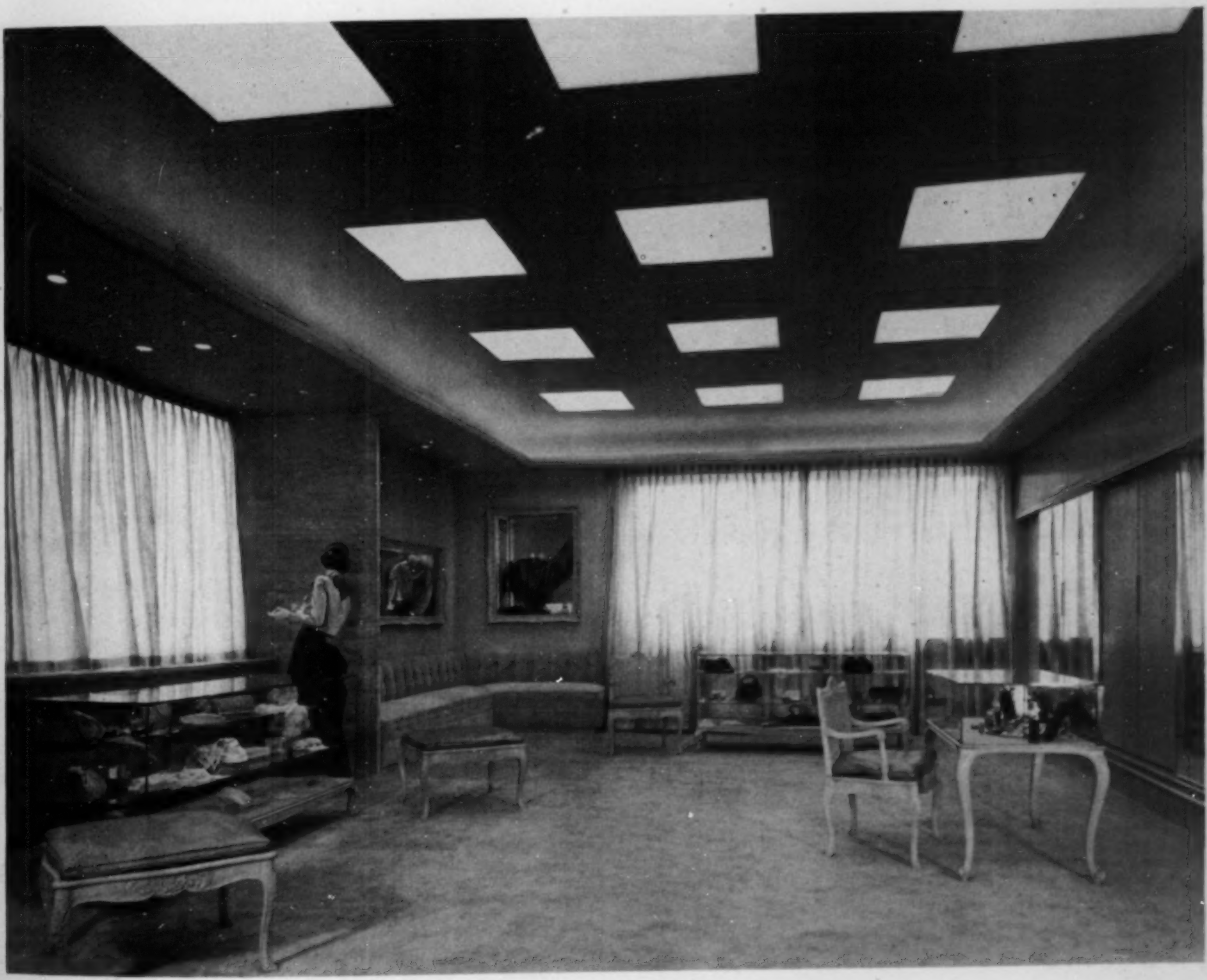
Ben Schnall Photos

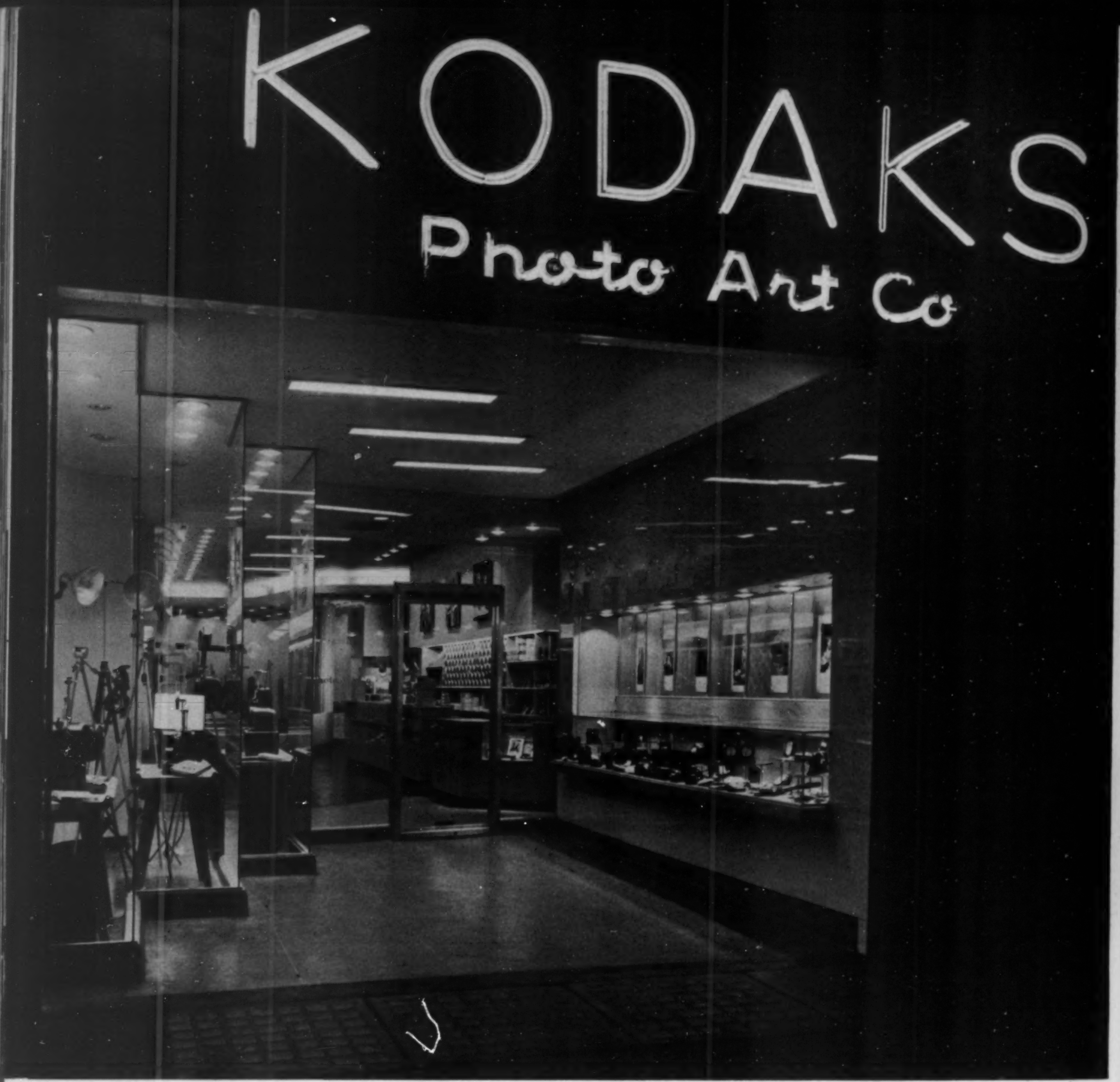



DRESS AND BLOUSE RACKS
BOOTH
BOOTH
DN
UP
SHOW ROOM
OFFICE
W
REST RM
W
OFFICE

SECOND FLOOR

*View of second floor, devoted to at-home clothes, negligees, dinner dresses and so on. Carpet is pink-beige, banquette is gray-beige velvet and gray-beige curtains are of silk gauze. Recessed wall display cases are trimmed with bleached wood picture frames. In the lighting, pastel shades of cold cathode tubing were employed to achieve a delicate, light pink color cast designed to be flattering to customers*



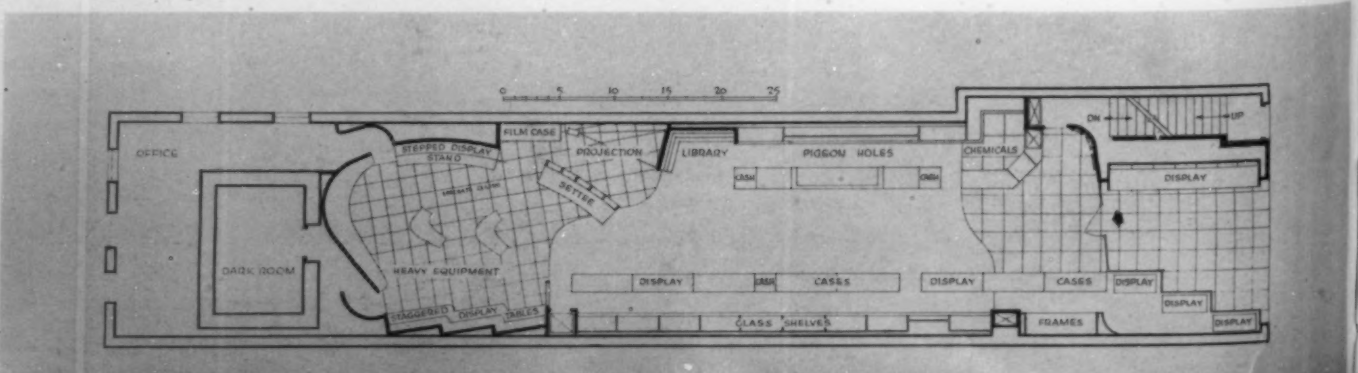

KODAKS
Photo Art Co

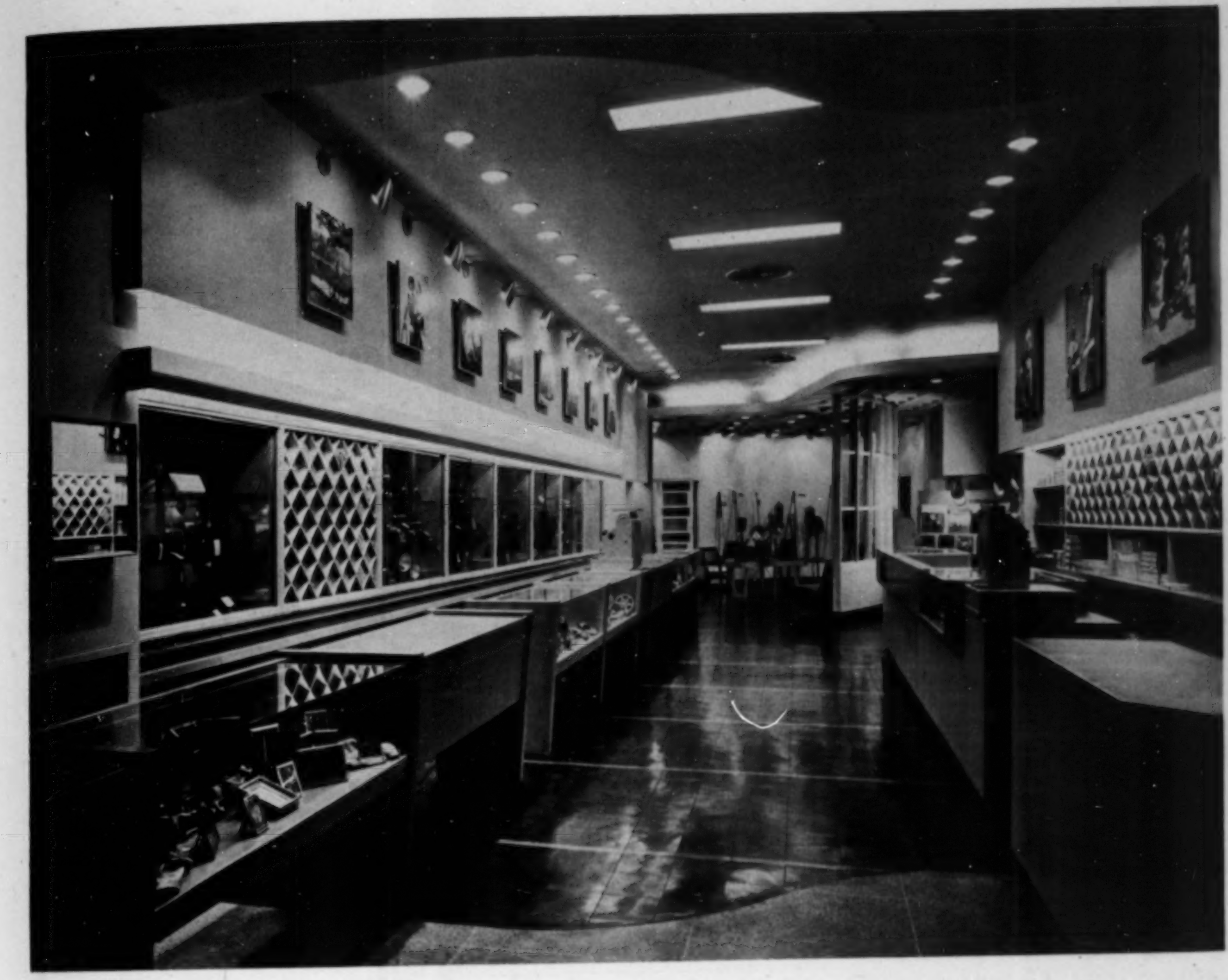
Gottscho-Schleisner Photos

# CAMERA STORE FOR PHOTO ART COMPANY

*Trenton, New Jersey*

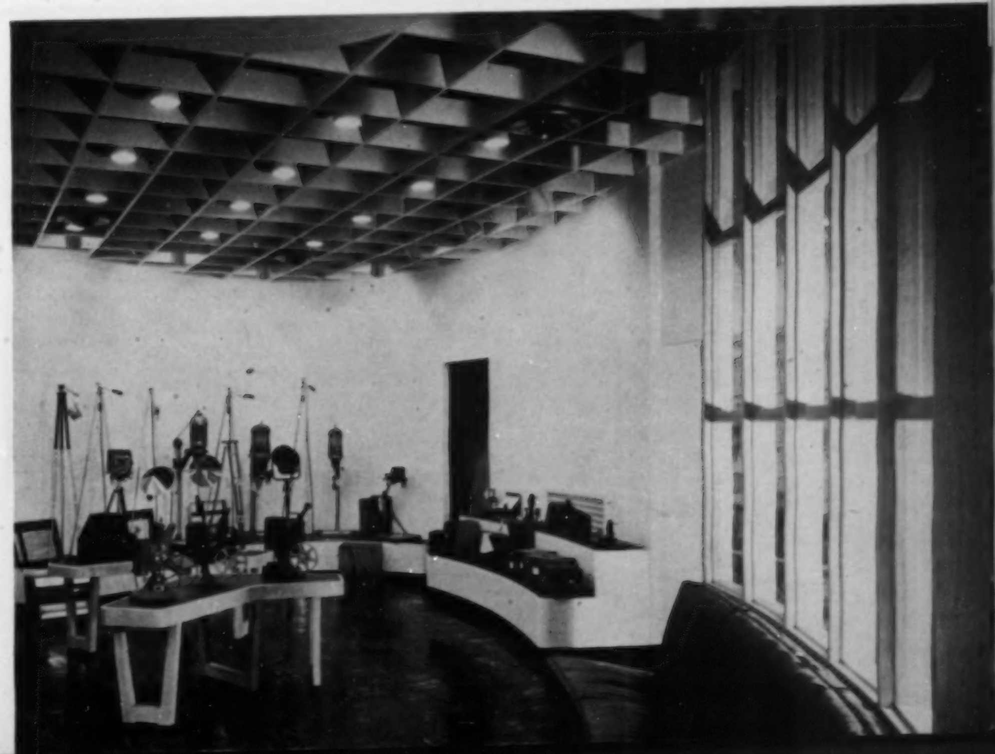
***J. A. Fernandez, A.I.A., Architect***

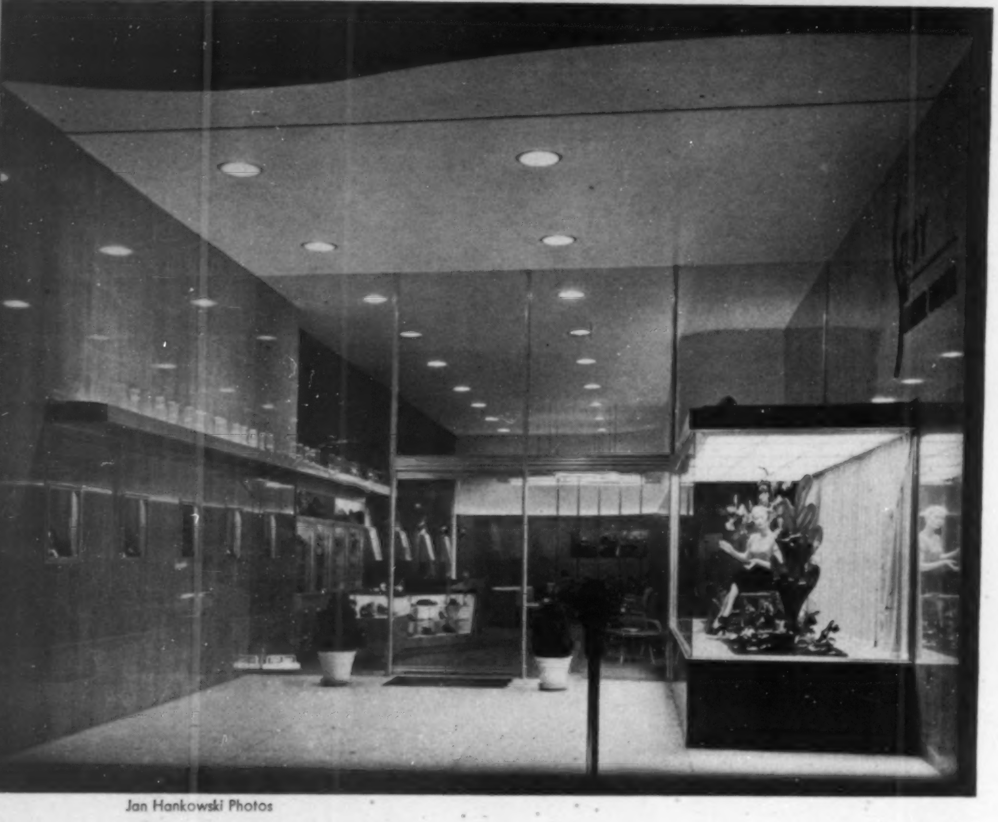

0
5
10
15
20
25
OFFICE
DARK ROOM
STEPPED DISPLAY STAND
FILM CASE
PROJECTION
SETTEE
HEAVY EQUIPMENT
STAGGERED DISPLAY TABLES
LIBRARY
PIGEON HOLES
CASH
CASH
CHEMICALS
DN
UP
DISPLAY
DISPLAY
CASH
CASES
DISPLAY
CASES
DISPLAY
DISPLAY
DISPLAY
GLASS SHELVES
FRAMES



*Store front is of gray structural glass, vestibule ceiling is plaster painted pale yellow. Interior woodwork is pickled oak, wall above cases is sea green and ceiling is pearl gray. Main flooring is black asphalt with deep green strips inset*

**THE high standards set for small shops during the last decade are exemplified in this mid-block camera store. Well-organized signs, displays, sales and services create an over-all effect suited to the specialized character of the goods on sale. Only the slight confusion of multiple lighting and display systems might seem to detract from the essential unity of the design as a whole. The diagonal film racks form an interesting pattern and the larger paraphernalia is well displayed at the rear of the store. — *M. K., Jr.***





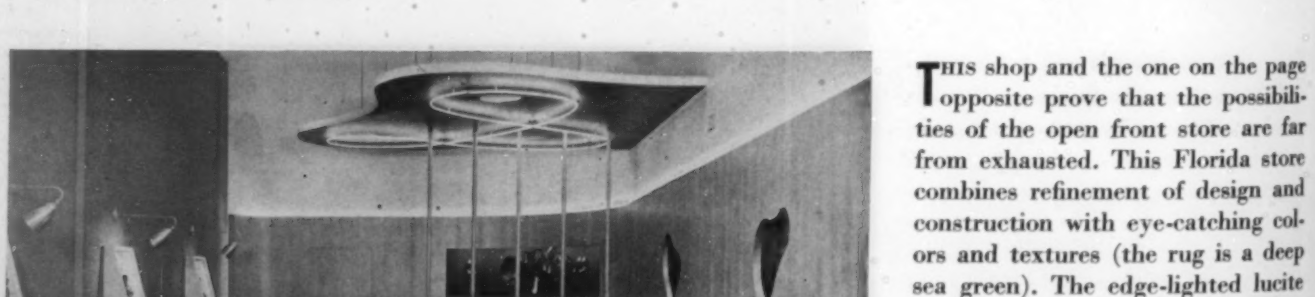
Jan Hankowski Photos

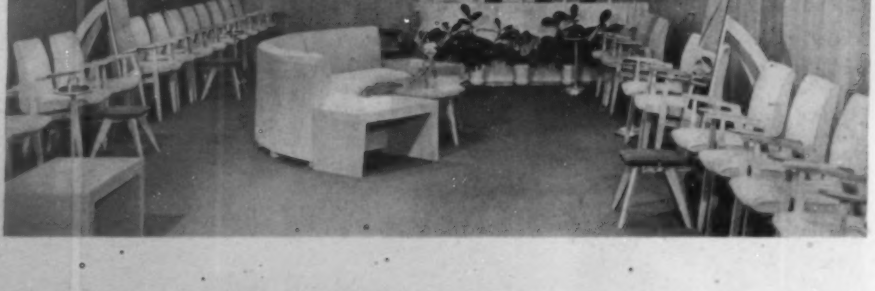
# SELBY SHOE STORE

***West Palm Beach, Florida***

***Igor B. Polevitzky, A.I.A.***

***Architect***


JAN
BAGS
HOSIERY
WRAPPING & CASHIER
LADIES WEAR
MENS WEAR
UP
T.
RECEIVING
SHOW WINDOW
STOCK ROOM
AIR COND
0
10
20



THIS shop and the one on the page opposite prove that the possibilities of the open front store are far from exhausted. This Florida store combines refinement of design and construction with eye-catching colors and textures (the rug is a deep sea green). The edge-lighted lucite sign along the west wall continues from the exterior through the glass line into the store. The glass line is well back from the street minimizing disturbing reflections, an arrangement augmented by high intensity interior lighting which serves the same purpose.

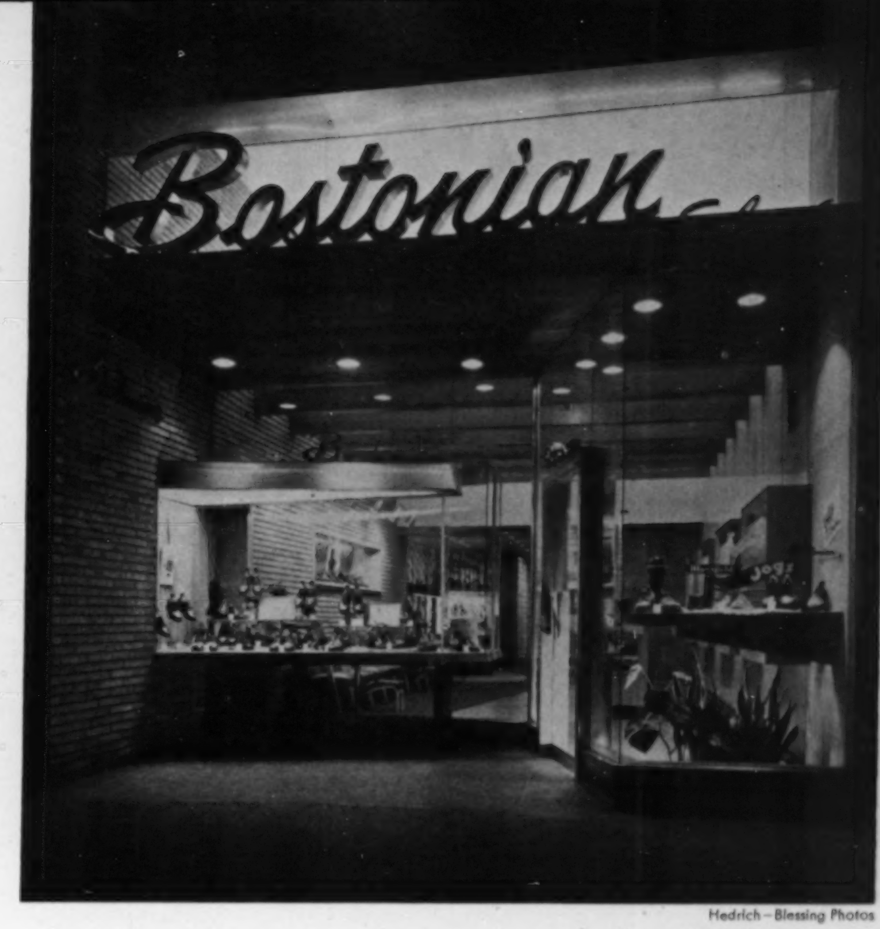
— *M. K., Jr.*

# BOSTONIAN SHOE STORE

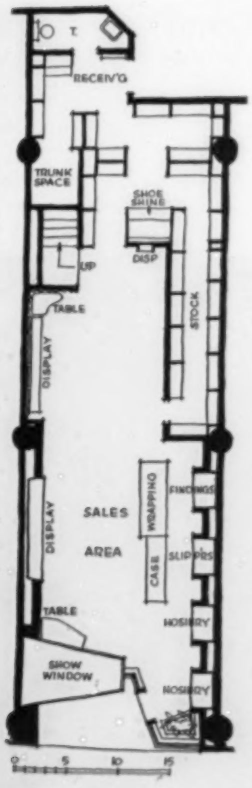
*Chicago, Illinois*

*Morris Lapidus, A.I.A.*

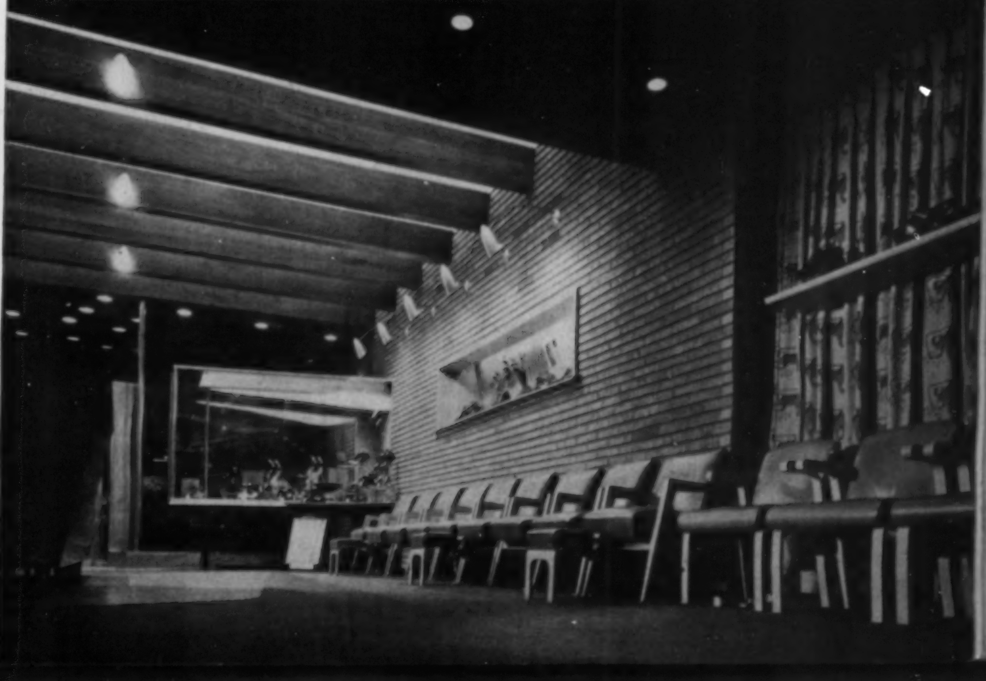
*Architect*

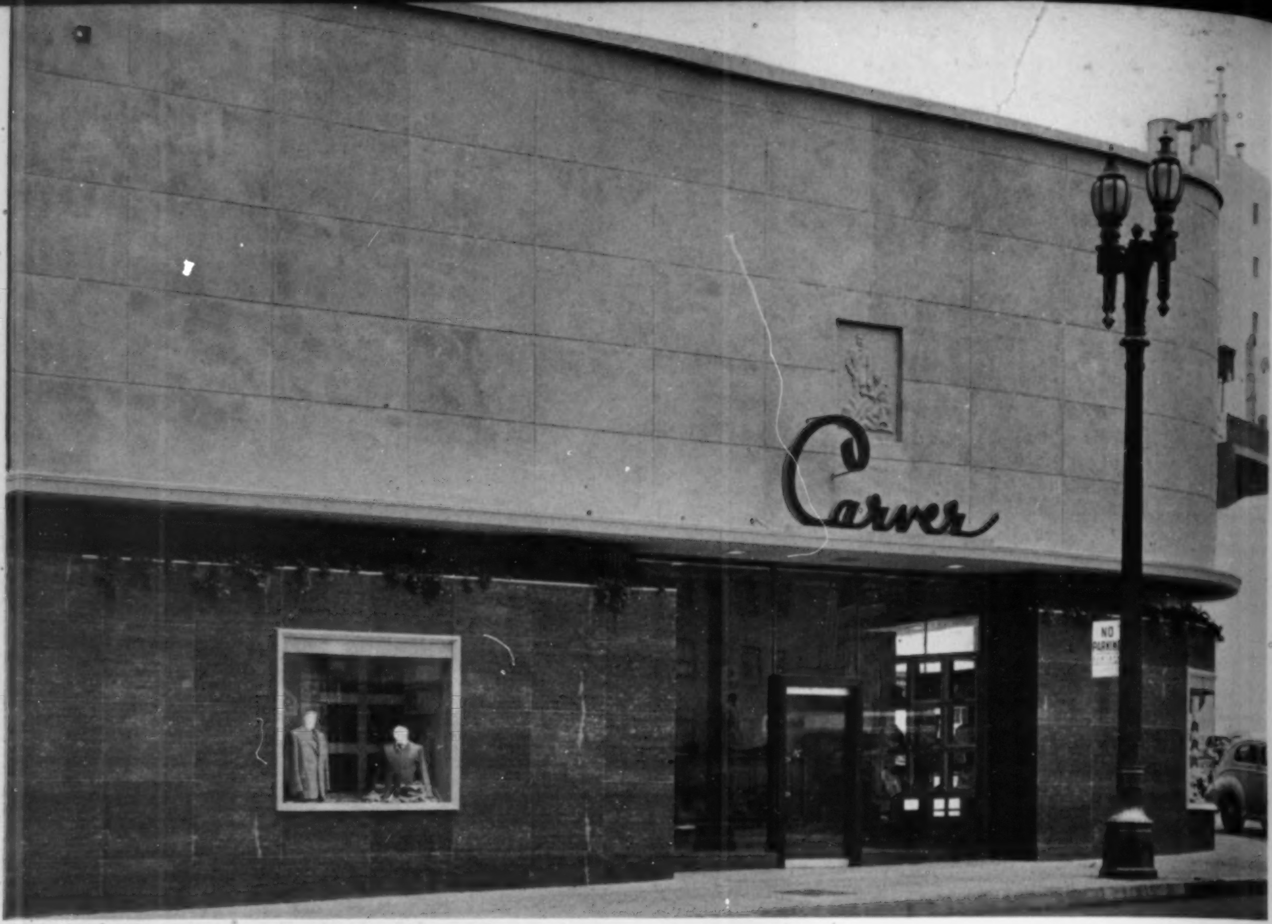


Hedrich—Blessing Photos


T.
RECEIV'G
TRUNK SPACE
SHOE SHINE
DISP
UP
TABLE
STOCK
DISPLAY
FINDINGS
WRAPPING
SALES
AREA
CASE
SLIPPRS
DISPLAY
TABLE
HOSIERY
SHOW WINDOW
HOSIERY
0
5
10
15

THIS Chicago shop achieves drama and distinction by a bold treatment of signs, backgrounds and displays. The silhouetted sign provides unmistakable identification by day or night and at considerable distances. Maximum show window display is attained in a very narrow frontage by the ingenious placing of the main entrance door at a splayed angle. Heavy beamed ceiling and exposed brickwork contribute to the masculine atmosphere of the store. The beams conceal indirect uplighting sources for the white ceiling above. Supplementary downlighting on the displays increases their sales effectiveness. — *M. K., Jr.*



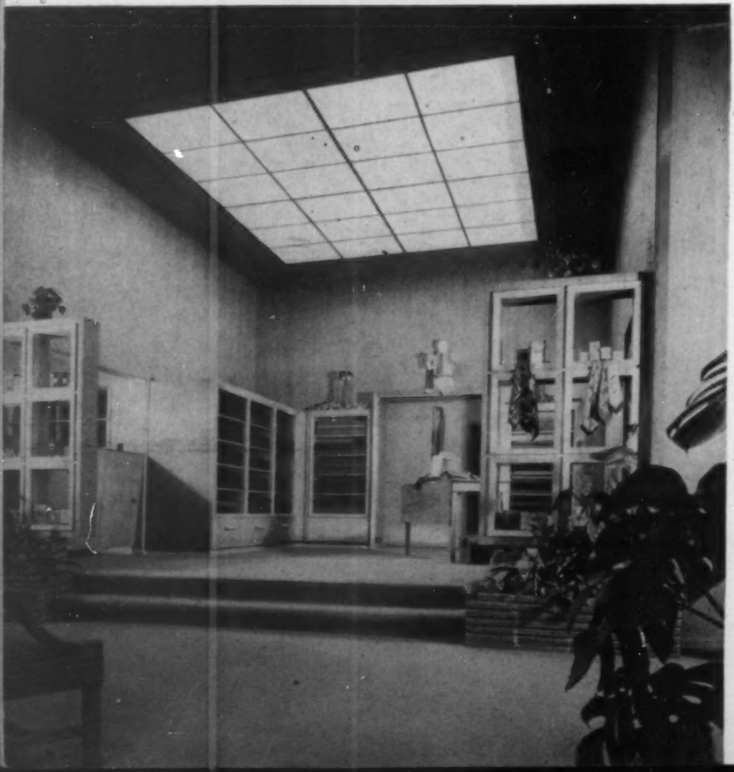

Carver
NO PARKING

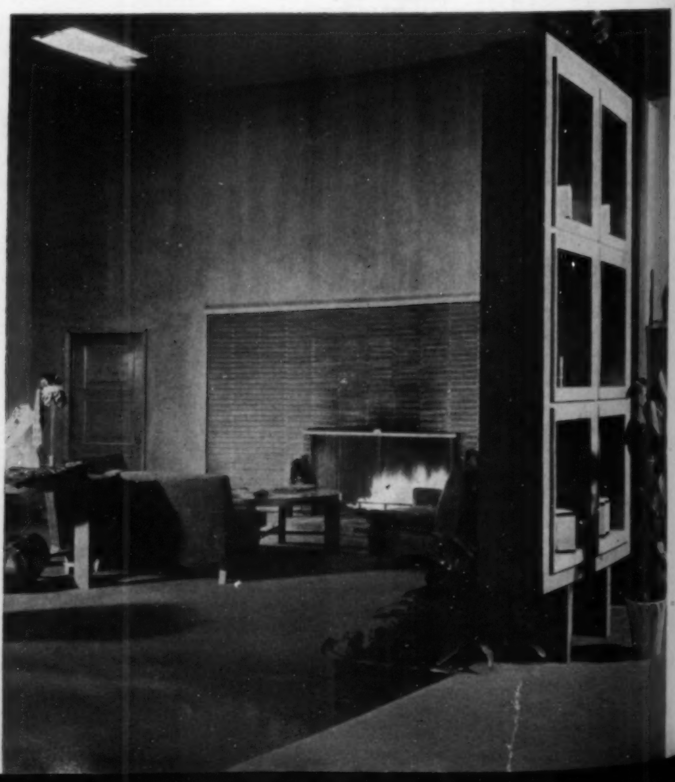
Julius Shulman Photos

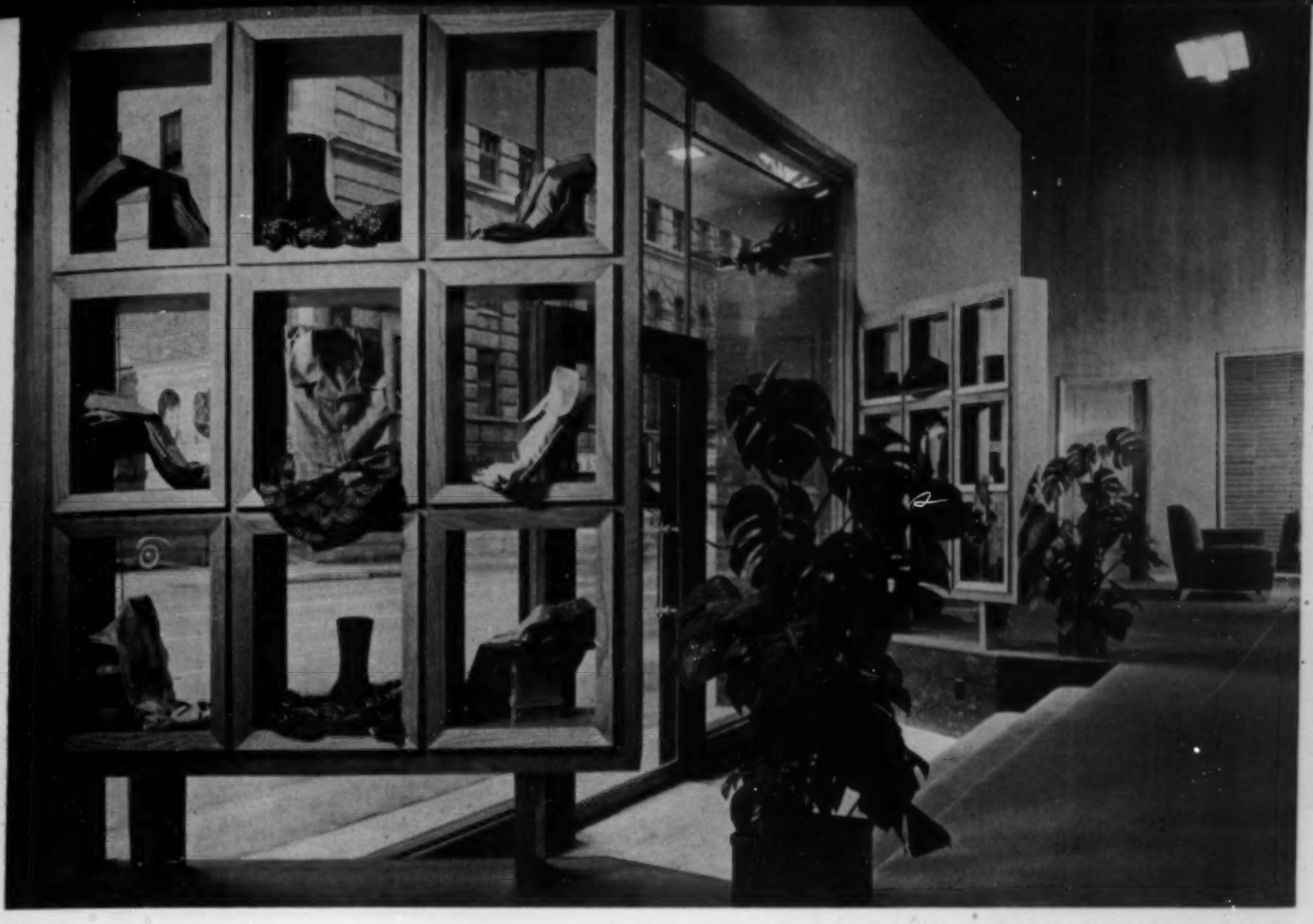
# TO SELL TAILORING FIRST, THEN MERCHANDISE

*Carver's, Custom Tailors, Los Angeles, California*

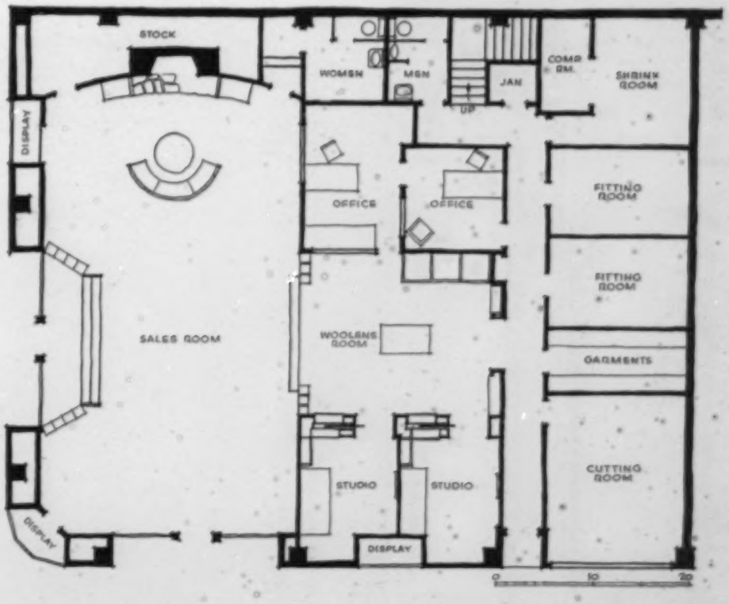
*Burke & Kober, Designers*



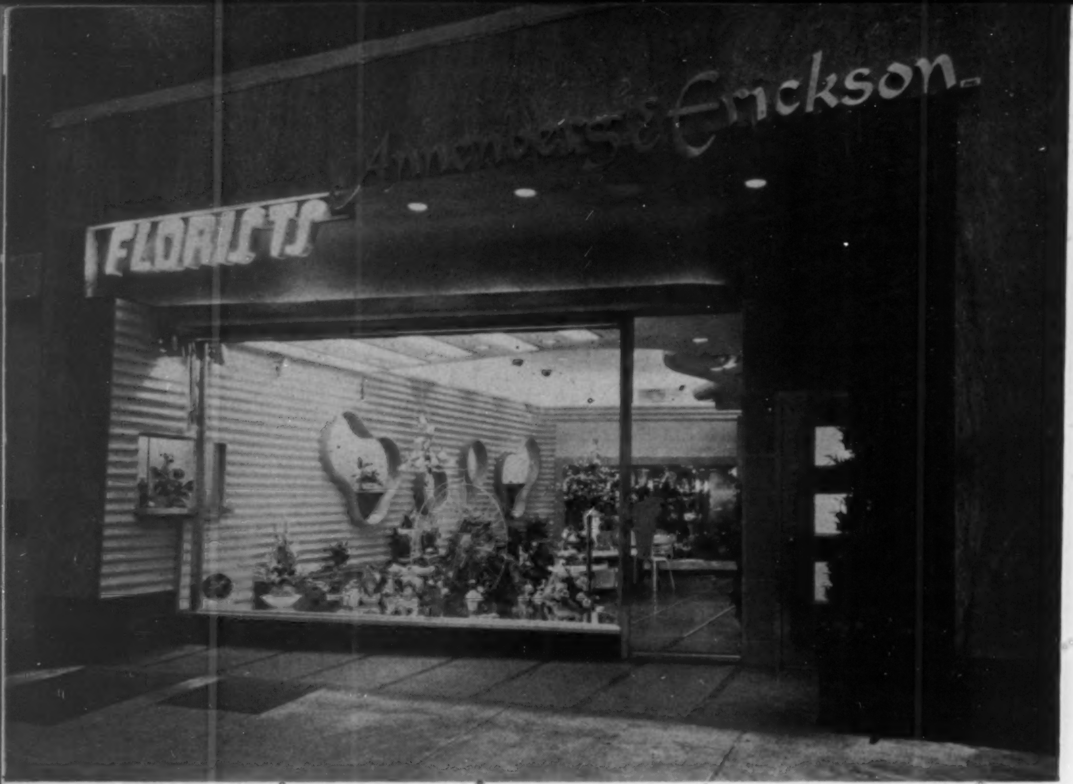




THE reserved, almost barren, exterior of this exclusive men's shop is in striking contrast to the luxurious treatment of the interior sales room. A few sales fixtures designed like pieces of residential equipment, massive display racks, soft carpets, colorful greenery, brick and woodwork, a hospitable blaze in the fireplace — all help to create the friendly atmosphere of a lounge. Fabric samples are discreetly displayed in a rear alcove. Behind the scenes, fitting and stock rooms, offices and workrooms, are efficiently arranged. The club-like atmosphere of this establishment is typical of a popular trend in marketing men's wear. — *M. K., Jr.*


STOCK
WOMEN
MEN
JAN
UP
COMP. RM.
SHRINK ROOM
DISPLAY
OFFICE
OFFICE
FITTING ROOM
FITTING ROOM
SALES ROOM
WOOLENS ROOM
GARMENTS
STUDIO
STUDIO
CUTTING ROOM
DISPLAY
DISPLAY
0
10
20

*Since the impulse merchandise is a secondary consideration to the custom tailoring, the façade was designed to permit a view into the main sales room, rather than to display men's furnishings. Exterior is Red Ark Fossil marble (more brown than red), with stucco above marked off and finished as cast stone. Trim around tempered glass doors is Macassar ebony. As the client did not want any "commercial effect," the main sales area was designed as a lounge, with the furnishings housed in equipment designed like furniture. The studio rooms have north light, but the large skylight in the woolens room is artificial, with a combination of fluorescent and incandescent lighting. Second floor is a large tailoring shop, with skylights*


FLORISTS
Annenberg & Erickson

*The shop itself is its own show window. The slightly recessed and angled front invites the passer-by to pause and enjoy without being buffetted by other pedestrians*

Ben Schnall Photos

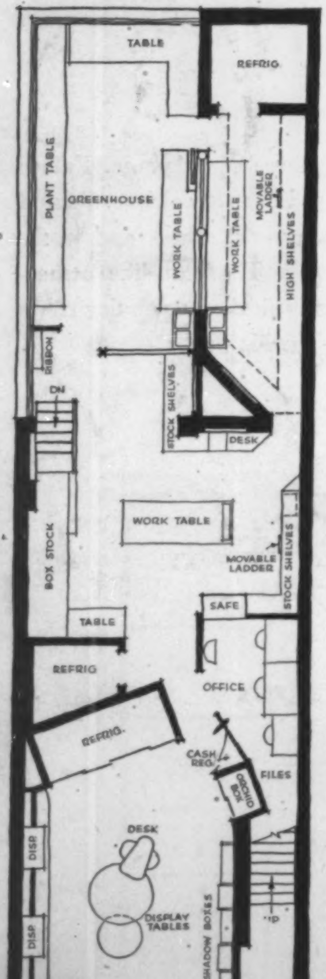
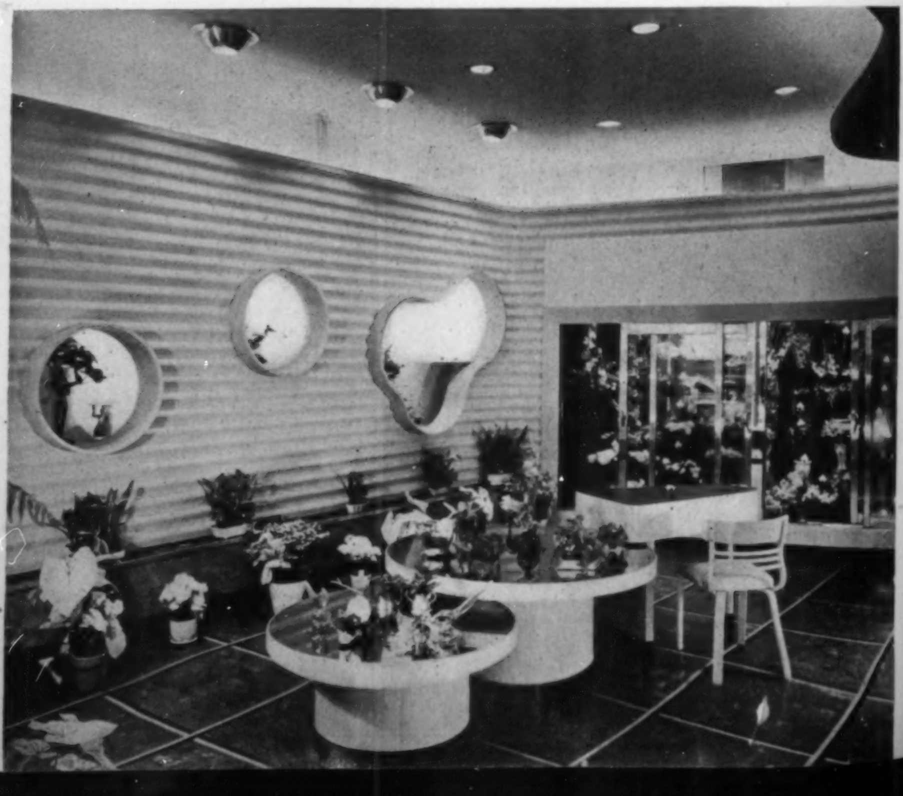


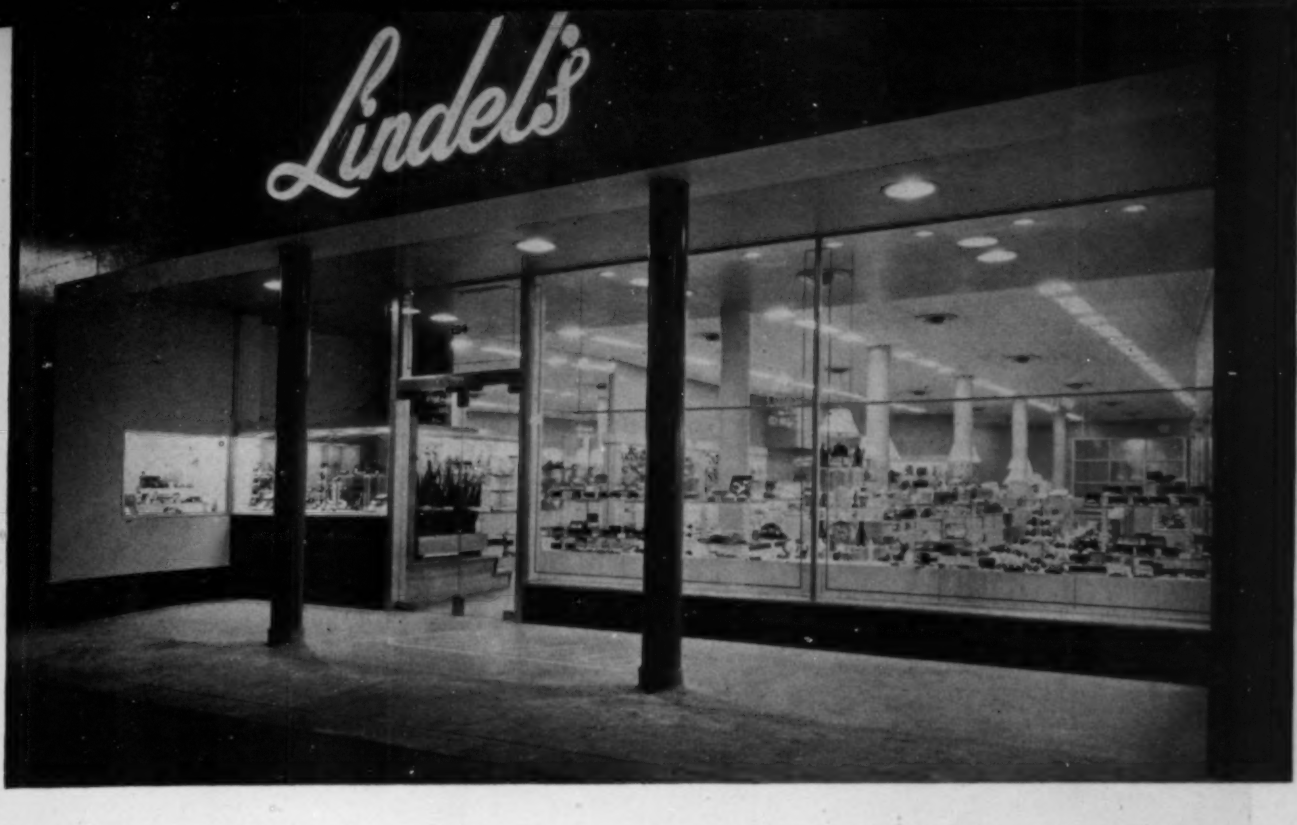
TABLE
REFRIG
PLANT TABLE
GREENHOUSE
WORK TABLE
WORK TABLE
MOVABLE LADDER
HIGH SHELVES
RIBBON
DN
STOCK SHELVES
DESK
WORK TABLE
BOX STOCK
MOVABLE LADDER
STOCK SHELVES
SAFE
TABLE
REFRIG
OFFICE
REFRIG.
CASH REG.
ORCHID BOX
FILES
DESK
DISP
DISP
DISPLAY TABLES
SHADOW BOXES
UP
DISP
SHOW WINDOW
SHADOW BOX DISPLAY
0
5
10

# SMART FLORIST'S SHOP, NEW YORK

***Marvin J. Neivert, Architect***

**A STRIKING example — in materials, textures, colors and lighting — of the trend towards greater richness for open-faced shops. That perpetual problem — the separate building entrance — is successfully solved. Sales and service elements, including necessarily large work spaces and the rear greenhouse, are well coordinated. Signs and store front are better handled than the somewhat complicated pattern of overhead lighting or the self-important "free-form" wall cases. — *M. K., Jr.***

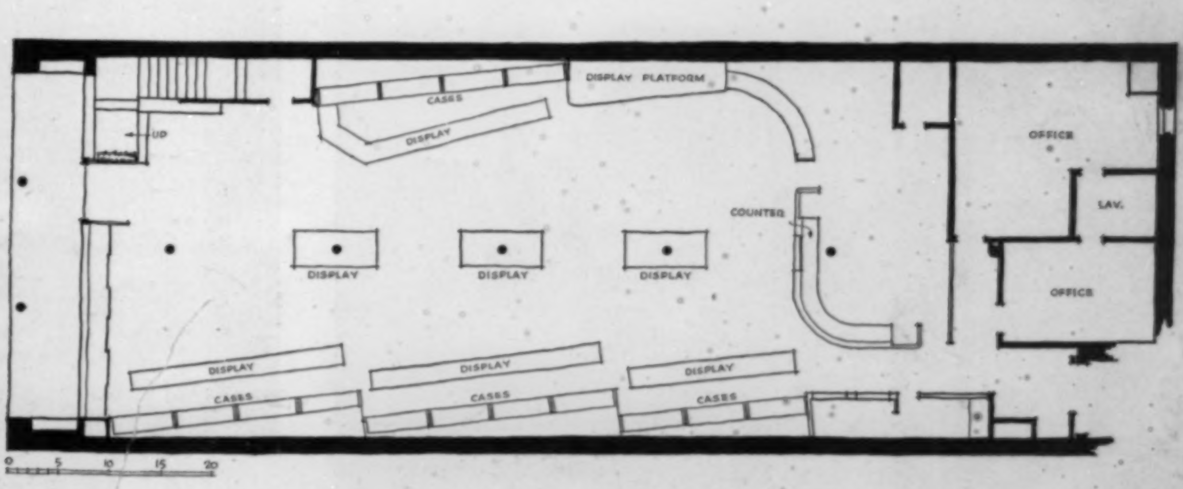




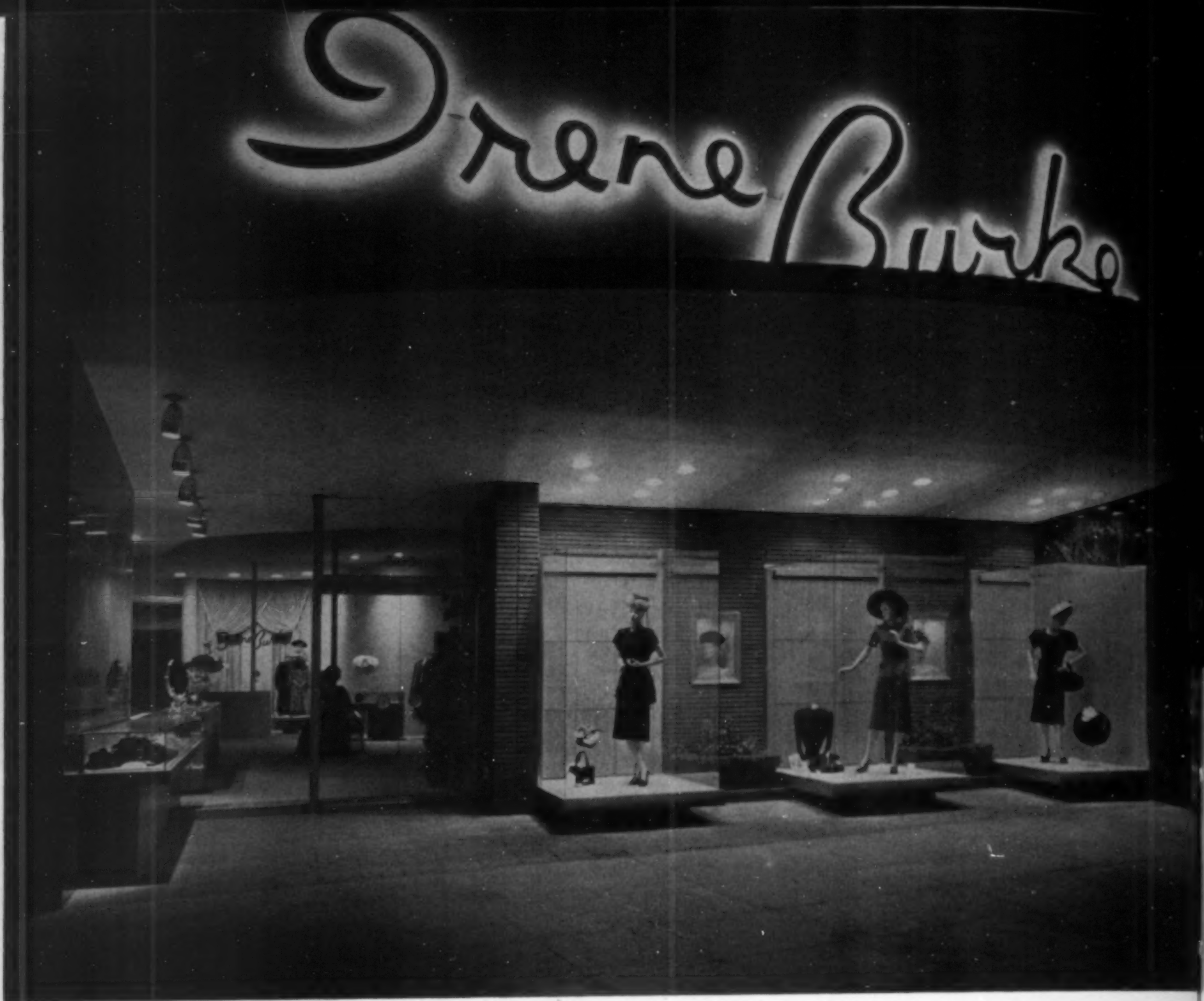
# LINDEL'S JEWELRY STORE, TOLEDO

***Bellman, Gillett and Richards, Architects***

An open, sheltered front, the mass display of sparkling merchandise, high intensity lighting, thorough air-conditioning, and a straightforward plan for sales and services all add up to an effective bid for a volume trade. Inside, there is very little attempt to give separate identity to each sales department or to soften the somewhat mechanical floor pattern, except the slightly angled setting of side cases toward the entering customer. — *M. K., Jr.*



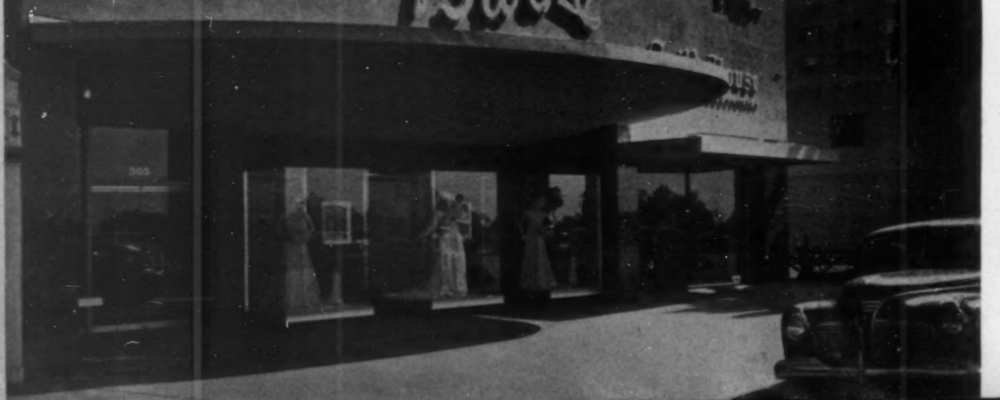
DISPLAY PLATFORM
CASES
DISPLAY
UP
COUNTER
OFFICE
LAV.
OFFICE
DISPLAY
DISPLAY
DISPLAY
DISPLAY
DISPLAY
DISPLAY
CASES
CASES
CASES
0
5
10
15
20

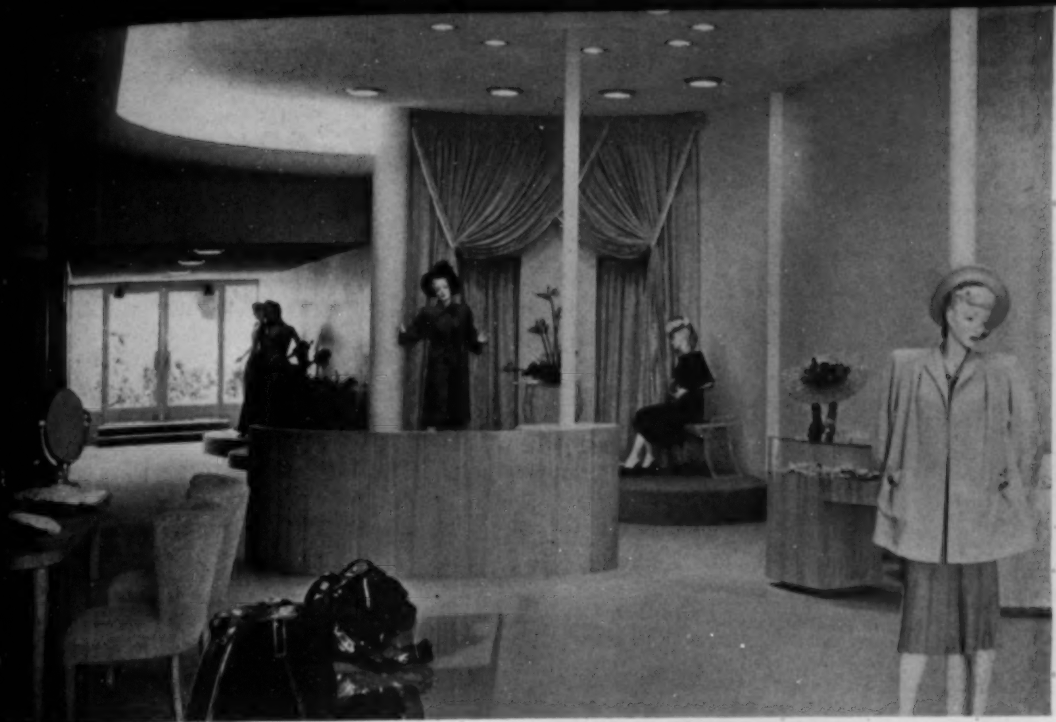

Irene Burke

Floyd Ray Photos

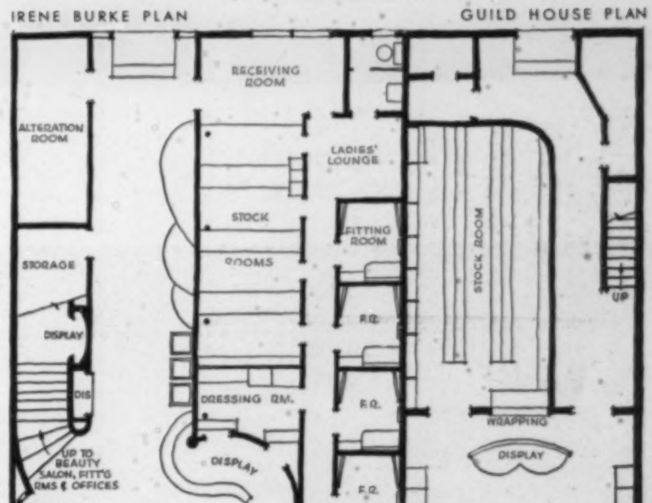
# COMPANION SHOPS WITHOUT CONFUSION, LONG BEACH, CAL.

***Kenneth S. Wing, Architect***

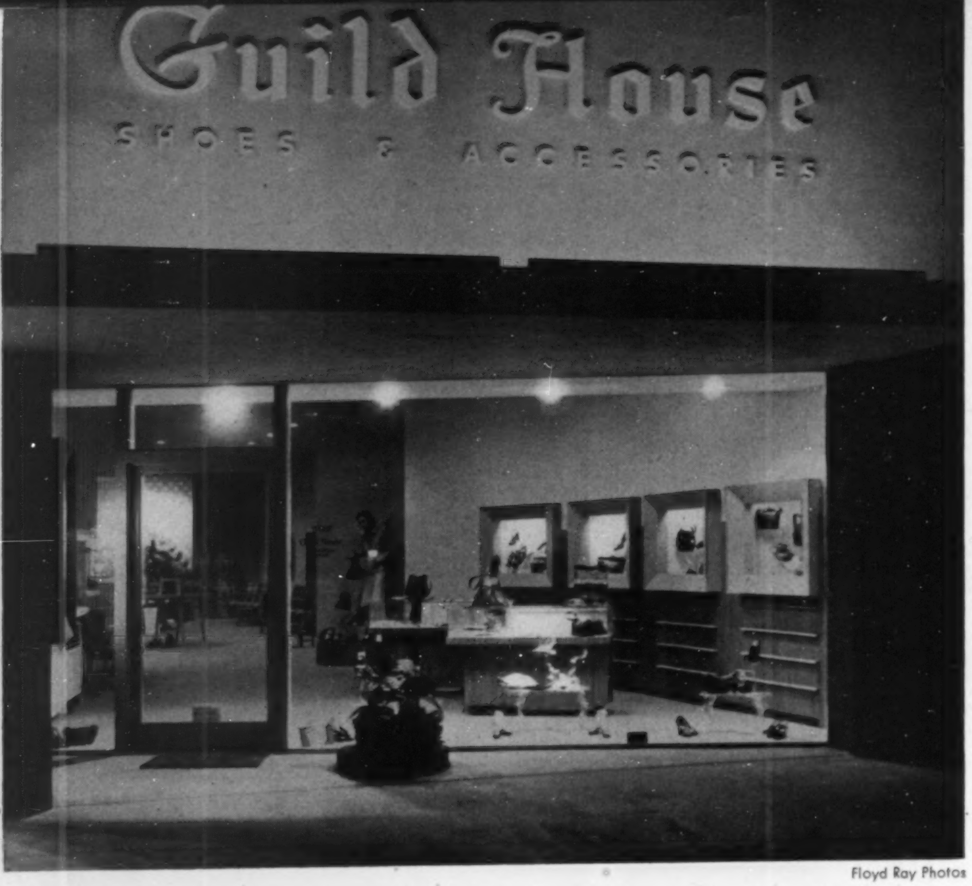

Irene Burke



*Plans show both the Irene Burke store and the Guild House, I. Miller store (illustrated on the following page). Each shop is distinctive and different, but compatible with its neighbor*


IRENE BURKE PLAN
GUILD HOUSE PLAN
RECEIVING ROOM
ALTERATION ROOM
LADIES' LOUNGE
STOCK
ROOMS
FITTING ROOM
STORAGE
DISPLAY
DIS
F.R.
DRESSING RM.
STOCK ROOM
UP
WRAPPING
DISPLAY
UP TO BEAUTY SALON, FITT'G RMS & OFFICES
WRITING DESK
WRAP
SETTEE
BLOUSES
HAT REPAIR
MIRROR
SETTEE
DISPLAY
JEWELRY
MILLINERY
STOR.
COSMETICS
HOSIERY
LINGERIE
BAGS
STOR.
CASE
STOCK ROOM
DISPLAY
STOR.
WRAPP'G
0
5
10
15
20

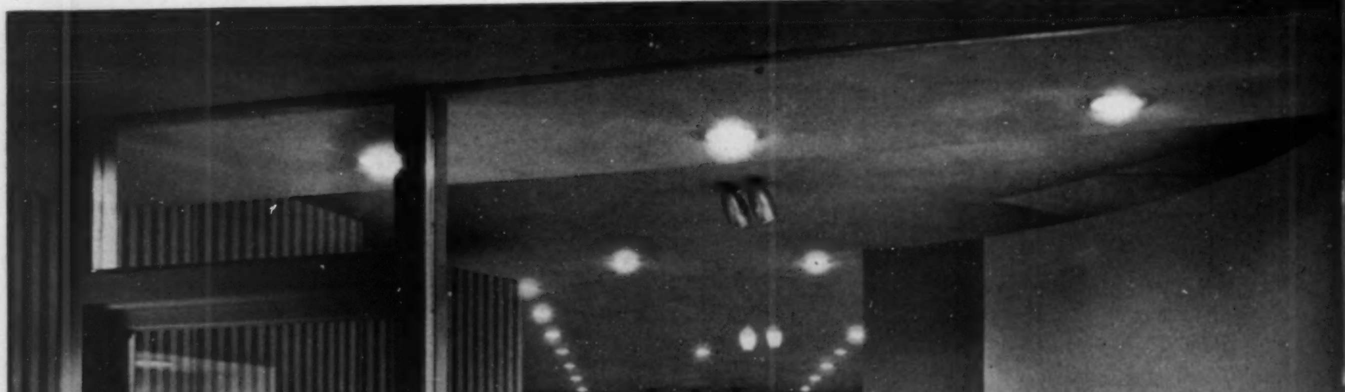
**T**HE two stores together can outfit milady from top to toe, but they are entirely separate entities under separate proprietors. From a design point of view they are complementary rather than clashing. A good example of luxury retailing, the intimate Irene Burke shop offers its patrons feminine merchandise and personal salesmanship against appropriate and colorful backgrounds. Sales floor flexibility is, perhaps justifiably, sacrificed to a formal arrangement of sales departments, each in its own setting. Equally intimate but more spacious interior effects can be achieved if boundary partitions are kept lower than ceiling level, but higher than eye level. Outside, the rich texture of brick and marble make an excellent foil for the interesting tri-part pattern of show windows — only the oversized canopy and sign letters seem to be unnecessarily large and heavy for so feminine a shop. — *M. K., Jr.*


Guild House
SHOES & ACCESSORIES

Floyd Ray Photos

## COMPANION

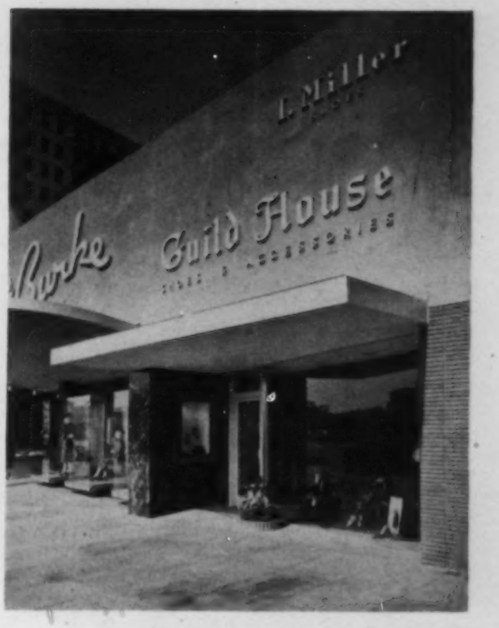
*The raised letters of the signs cast shadows contrasting with their surfaces and increasing legibility by both day and night*



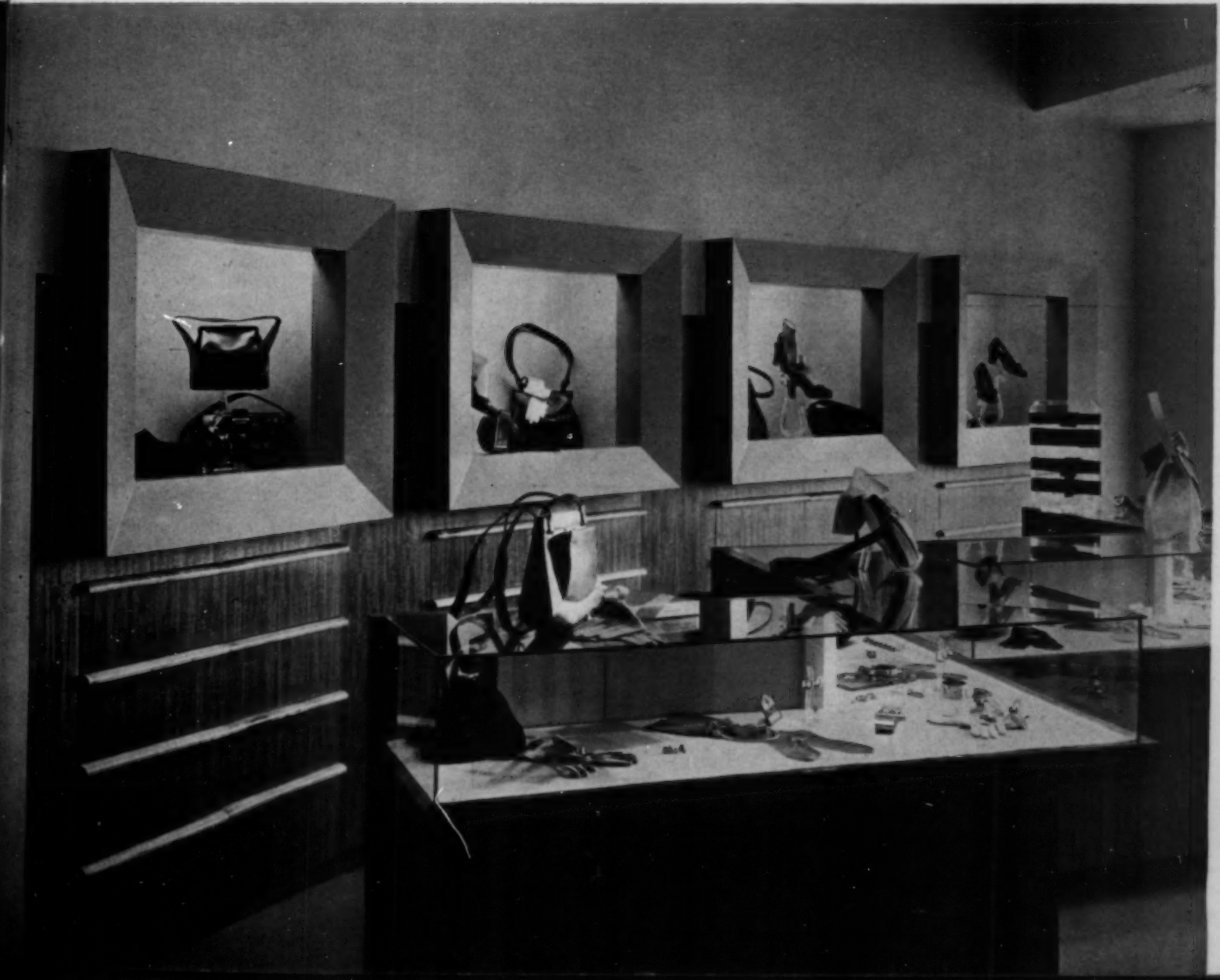
# SHOPS WITHOUT CONFUSION

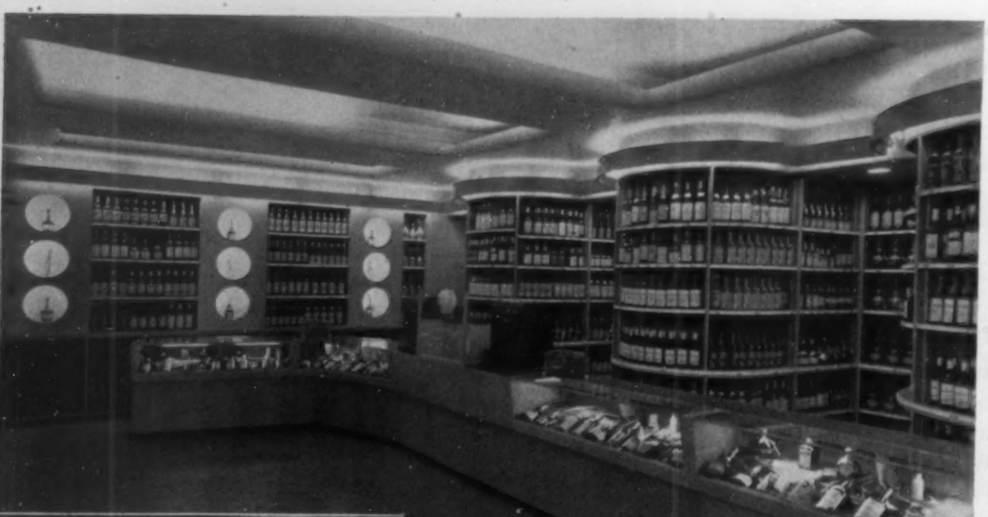
(Continued from page 141)

*Kenneth S. Wing, Architect*



THIS shop is a good companion to its next door neighbor (shown on preceding pages). Indoors, shoe sales and reserve — the demand department — are properly placed at the rear, impulse accessories at the front, for maximum customer traffic and display value. This arrangement also gives the sales floor an air of privacy in spite of the visually open front. The high point of both interior and store front is the well-organized and detailed accessories section. Indoors and out, lighting, textures, colors, all contribute to the shop's intimate appeal. Recessed store front and canopy are more consistent in scale as compared to its next door neighbor. — *M. K., Jr.*



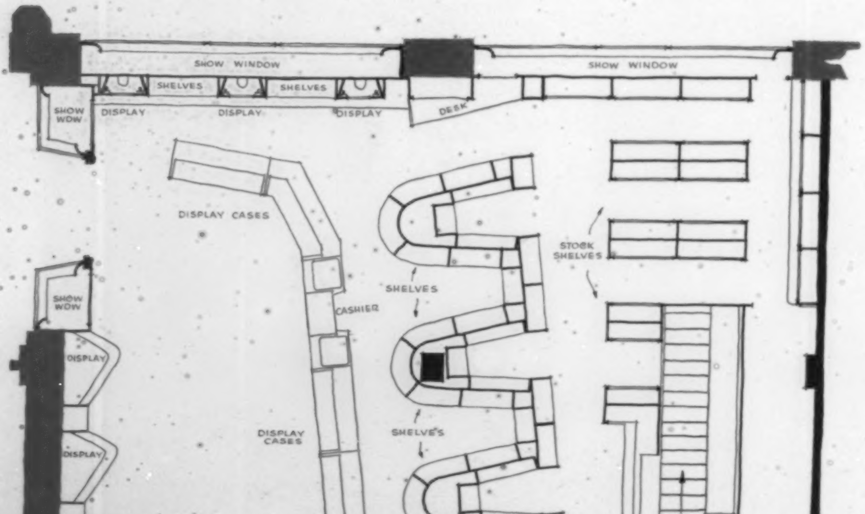


Haskell Photos

# LIQUOR MART, NORTH STATION, BOSTON, MASS.

***David J. Abrahams***

***Architect***


SHOW WINDOW
SHELVES
SHELVES
SHOW WINDOW
SHOW WDW
DISPLAY
DISPLAY
DISPLAY
DESK
DISPLAY CASES
STOCK SHELVES
SHELVES
CASHIER
SHOW WDW
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SHELVES
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COOLER
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SHOW WINDOW
0
5
10

The outstanding feature of this interior modernization is the tremendous stock capacity gained by careful replanning. The design of the clean-cut sales counter is also commendable. It is unfortunate that in the photograph the rectangular lighting pattern of the ceiling seems to compete with the curved lighting of the stock shelving. Materials, colors, customer traffic and behind-the-scenes services are all well handled. — *M. K., Jr.*

# ARCHITECTURAL ENGINEERING

## TECHNICAL NEWS AND RESEARCH

# PRACTICAL ASPECTS OF THE HEAT PUMP

By W. E. Johnson*

SINCE the spotlight of publicity has been focused on the heat pump, many people believe that the technological advances of the war years will now make this development a practical product that many people can own. Actually, all the evidence indicates that the advent of the heat pump depends much more upon economic factors than upon technological advances.

The most important technical difference between the commercial installation and a residential installation is that practically all commercial installations have a relatively much greater internal generation of heat than has a residence. This heat comes from lights, heat given off by people, from cooking and from other sources. It reduces the requirement for heating in the winter and increases the requirements for cooling in the summer to such a degree that the economics of heat pump applications are completely different from those for residences. The place that the electric heat pump will take in this field is a matter of much speculation at the present time and it is doubtful whether anyone can predict with accuracy the course of this development for the next few years.

### Technical-Economic Problems in Residential Air Conditioning

*The Temperature of the Heat Source:* There are two important kinds of heat source that must be clearly distinguished in any heat pump application. *First,* there is the heat source of variable temperature, in which the temperature of the source decreases as the weather gets colder while at the same time the heat loss of the house is increasing. The second important classification is that in which the heat source is substantially constant, or in which the temperature of the source will not suddenly fall below a satisfactory value.

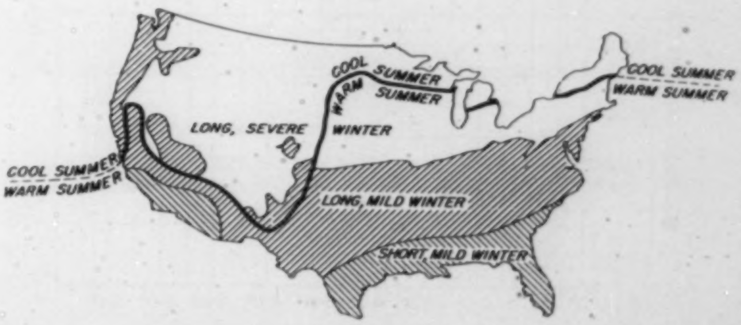
The only common example of the first type is outside air used as the source of heat. Air as a source does not fall in the second class excepting in very temperate climates. This kind of heat source has a profound effect on the economics of design. The major effect of a variable source such as air is substantially to increase the maximum displacement rate required by the compressor whenever the design temperature goes below approximately 30° F. Design temperatures below 30° F. are common throughout most of the United States. Some ideas of the geographical areas in which air-to-air residential heat pumps will be practical can be obtained from the map shown as Fig. 1.

A second major effect of the variable temperature heat source is to require a larger motor than would otherwise be required. It should be noted that the size of the heat transfer surface is not appreciably affected for any given heat loss. However, the extra displacement and the larger motor size together introduce some difficult problems in providing the automatic capacity modulation required, and they aggravate the problems of maximum electrical demand and of starting without excessive currents.

Because of the inherent difficulties of using air as a source of heat, a great deal of emphasis has been placed recently upon the use of heat sources that fall in the second class (essentially constant temperature). Some of these are discussed in the following paragraphs.

*Well Water:* Well water, when available, makes an excellent source of heat since its temperature is usually close to the annual mean temperature, and its temperature is not subject to sudden changes. The distribution of well water temperature over the United States is shown in Fig. 2. The sinking of a well and the provision of pumps must be considered, however, as a factor in first cost. Also to be considered is the problem of disposal. In some commercial installations this has been solved by drilling two wells, pumping from one and discharging into the other. This is entirely practicable as long as the wells are not too close together so that short circuiting can occur with a gradual decrease of temperature of the source. For residential heating, disposal by means of an extra well is probably not economical. Any extensive use of well water without restoration (pump back) would tend, in many localities, to deplete the supply and to give rise to local problems of disposal. Other problems arising in the use of well water which is pumped directly include corrosion and maintenance of pumping equipment. The latter

**Fig. 1.** *Weather map discloses areas most favorable to heat pump*



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*Manager of Engineering, Air Conditioning Dept., General Electric Co. A paper by the author at the 54th annual meeting of the American Society of Heating and Ventilating Engineers, February 1948.

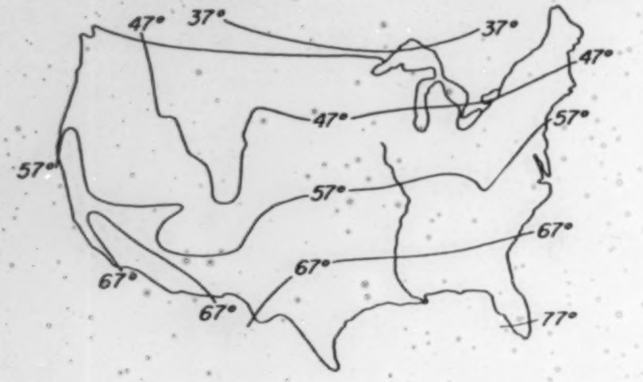


**Fig. 2.** *Well water temperatures at depths of 30 to 60 ft.*

is not to be considered lightly when 24-hour service is a requirement.

For these reasons the use of directly pumped well water as a source of heat is not considered very practicable from the long range point of view for residential heat pumps, although it is entirely practicable in many commercial installations.

*Underground Water — Not Pumped:* If underground water is available, and particularly if it is moving, it is feasible to sink a heat exchanger into the ground in the form of a well through which a secondary medium is circulated to pick up heat from the water. This is the system used by one manufacturer. The heat exchange fluid may be water, or, if conditions require, it might be a special solution.

The use of underground water in this manner, providing a source of heat at substantially constant temperature, has a profound influence on the design of the heat pump itself. The large displacement rate characteristic of a low temperature air-to-air system is no longer required and the motor can be sized more economically. The air side heat transfer surface with its air moving equipment is no longer required on the well side of the system, and this naturally reduces the overall size. Against these advantages, however, must be charged the first cost of the well and the cost and maintenance of the fluid pumping element.

With this type of installation it is important that the presence of underground water be known in advance of installation. The chemistry of the water should be investigated in relation to the metals used, and it should be determined whether the underground water is moving or stationary. A very slow movement will, of course, make available great quantities of heat, but if the water is actually stationary there is some danger of freezing, and this might not be discovered until the most severe weather has caused the maximum demand to be placed on the well.

*Earth as a Source of Heat:* While the earth under some conditions is a practical source of heat, there are probably some misconceptions about its use. The heat that flows from the center of the earth and through its crust apparently comes through at an exceedingly slow rate. Dr. E. N. Kemler in his recent paper on "Properties of the Earth" gave an interesting tabulation showing the wide range of conductivities that have been reported for different kinds of earth under different conditions of moisture. These conductivities ranged all the way from 0.2 to over 2.0 Btu. per (hr) (deg) (ft). If a conductivity of 0.5 is assumed, it would require several acres of ground to supply heat from the center of the earth at the rate required for a six or seven room house.

In practice, if the evaporator tubes are sunk into one or more trenches 3 to 6 ft. below the surface, the amount of heat picked up from the center of the earth will be almost negligible.

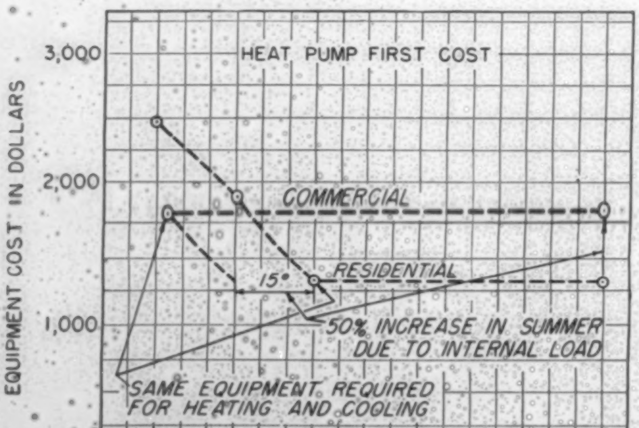
When the earth is used as a source of heat the true source is the sun, which provides radiation and warm convection currents to heat the surface. The flow of this heat, of course, has a tremendous time lag. Nevertheless, it is this source, or heat from underground water, which is used to replenish the heat drawn from the earth by a heat pump.

*The Use of Water Storage:* An air-to-air system making use of water storage for peak load conditions has been proposed many times in the past. While this system is workable it may have an economic disadvantage in that it combines most of the complexity of the air-to-air system with the additional first cost of a water storage system. Its chief advantage lies in reducing the size of the air-to-air heat pump required because it is capable of handling severe peaks of short duration.

*Other Methods of Obtaining a Constant Temperature Source:* Other methods of maintaining a reasonable temperature at the heat source have been proposed. One of these methods is the use of an air-to-air system with city water during peak load conditions. One of the difficulties of this system is that city water in many localities may get very low in temperature, so that excessive quantities must be used. If the water is used as a spray on the outside air heat transfer surface, it tends to aggravate the defrosting problem.

Ice storage is another method that has been proposed and which can be

**Fig. 3.** *Theoretical chart of first costs of heat pump*



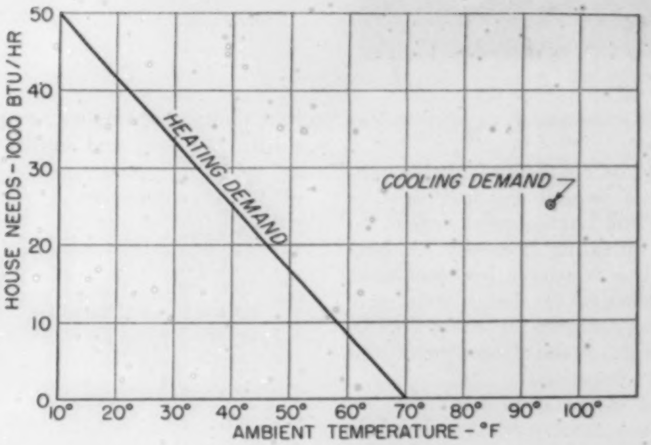


**Fig. 4.** *Heating and cooling demands for small house*

used in much the same manner as water storage, since the ice in forming yields its latent heat. This system is beset with the well known problems of freezing ice, and allowing for its expansion.

### *Effect of Climate, Source of Heat, and Internal Heat Load on First Cost*

This leads to the crux of the heat pump problem. This problem is one of determining the design that will give the most economical first cost considering the effect of climate, the nature of the source of heat and the influence of internal heat load in the building.

This problem has not yet been solved, and it is very probable that the best solution will not appear until a sufficient number of installations of different types of machines have been made to provide the answer. However, it is possible to gain some perspective of the problem by studying the cost trend of an air-to-air heat pump as a function of the winter design temperature. The results of an elementary study of this kind are shown in Fig. 3.

The cost figures shown in Fig. 3 are purely relative values taken from an arbitrary base of $500 per nominal horsepower at a 40° F. winter design temperature. Fig. 3 is also based on the heating and cooling requirements of a small house that would require 50,000 Btu per hr. of heating at a 10° F. outdoor temperature. The first significant point to note is that the cost of the machine is determined equally by the summer cooling and by the winter heating requirements down to an outdoor temperature of 40° F. Below this temperature the cost of the equipment is determined by the heating requirements, because it must be larger than would be required by the summer cooling demand. This does not mean that the equipment is necessarily uneconomical at temperatures below 40° F. when compared with a water-to-air system. Any comparison with a water-to-air system must take into consideration the first cost of the well and its auxiliary equipment.

The second and most important observation that may be made by referring to Fig. 3 is the very substantial effect of an internal heat load. If it is assumed that this same structure were used for commercial purposes, and if in such use an internal load were generated sufficient to maintain a 15° F. differential in the winter, and with ventilation excluded, it will be observed that the cooling requirements in the summer are substantially increased and that an economical balance on first cost can be reached when the unit is applied for heating at outdoor temperatures down to 12° F.

The actual effect of internal heat load varies widely among different commercial installations, and the points of economical balance for the first cost may vary widely from those shown for a typical small house in Fig. 4. However, the effect of an internal heat load such as is commonly encountered in commercial installations is fundamental, and will often be of sufficient magnitude to have a major effect on the economics of first cost.

### *The Problem of Delivering Low Grade Heat*

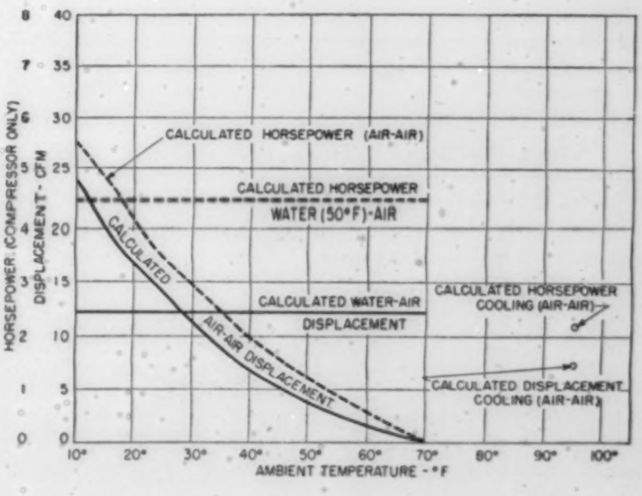
One item that must be watched closely in the application of a heat pump is the cost of moving the air stream. Typically in a heat pump installation, the rate of air flow required to deliver heat to the house will be approximately twice that required in an ordinary automatic warm-air conditioner such as an oil fired warm-air unit. If the ducts are unchanged over those used with an ordinary heating system the power required for circulating the air will be excessive. Even when the ducts are designed for reasonably low velocity the power requirements will be higher than those of a more conventional warm air heating system. These relations are shown in Fig. 6.

Any substantial increase in power for moving air decreases the coefficient of performance, and this problem is serious enough to make a heat pump unattractive unless the system is designed for low pressure drop.

### *Operating Economy*

As a general statement it appears that in most localities and for moderate winter design temperature the heat pump can be competitive with other fuels on the basis of operating costs at a power rate of one cent or less per kilowatt hour. Tables 1 and 2 tabulate the competitive costs of electricity

**Fig. 5.** *Relation of displacement and power to design temperature*



against some commonly quoted prices of other fuels.

It should be emphasized in this connection that overall seasonal weather conditions will have a great deal to do with the operating economy. A heat pump with a relatively low coefficient of performance at its design point may nevertheless compare favorably over an entire season, if the design conditions are of short duration.

The cost of operating auxiliaries has already been mentioned in connection with the problem of delivering low grade heat, and the cost of operating blowers or water pumps will be found to be a significant item.

Another problem influencing the operating economy of the heat pump is the ratio of its peak load to its average load, which may, in certain localities, impose unfavorable demand charges. These will, of course, vary with the locality and with the effect on the utility's distribution system. The use of a constant temperature source of heat such as well water is favorable from this point of view, excepting in very temperate climates.

It will be noted in Fig. 7 that the maximum electrical demand will be substantially higher than the power required at the design point. This graph shows the results computed for an air-to-air design provided with capacity modulation in steps of 25 per cent down to 25 per cent of full compressor displacement.

It is difficult, at the present stage of heat pump development, to give statistically averaged and authentic figures on actual operating costs. As a matter of interest, however, studies of two commercial and one residential installations gave power consumption rates ranging from $\frac{1}{2}$ to $\frac{2}{3}$ kwhr per degree day per installed compressor motor horsepower (installed power of auxiliaries not included).

### Other Technical Problems

It has been emphasized previously that the important problems of the heat pump are primarily economic in nature. This does not mean that there are not a host of other problems that need attention and that will arise in any specific design. These other problems may all be considered minor to the extent that technical solutions are possible. For completeness some of these problems are mentioned in the following paragraphs:

*Automatic Defrosting* is a necessity on air-to-air systems. This has been a common problem in conditioned air coolers, and there is no reason why it cannot be satisfactorily solved in the heat pump.

*Automatic Capacity Modulation* is a necessity on almost any design of heat pump, and must cover a wider than normal range in an air-to-air system designed for low temperatures. A control problem in connection with this arises from the fact that the response must reverse from summer to winter conditions.

**Table 1—Fuel Costs for Heating—Northwest United States**

| Heat Source | Price | Btu Contained | Efficiency of Use Percent | Cost Per Million Btu | Annual Cost [a] | Equivalent Power Cost for Heat Pump |
|---|---|---|---|---|---|---|
| Bituminous Coal | $9.00/Ton | 20,000,000/Ton | 65 | $0.69 | $115 | COP = 3.5<br>$0.0082/kwhr |
| Oil | 0.09/Gal | 140,000/Gal | 75 | 0.86 | 138 | 0.01/kwhr |
| Gas Mfd. | 0.60/Mcu ft | 570/cu ft | 75 | 1.40 | 234 | 0.017/kwhr |

[a] Maximum demand = 85,000 Btu/hr; design temperature = +10 F; heating season = 4500 deg days.

**Table 2—Fuel Costs for Heating—Northeast United States**

| Heat Source | Price | Btu Contained | Efficiency of Use Percent | Cost Per Million Btu | Annual Cost [a] | Equivalent Power Cost for Heat Pump |
|---|---|---|---|---|---|---|
| Anthracite Coal (Stoker) | $11.10/Ton | 270,000,000/Ton | 65 | $0.63 | $126 | COP = 3.5<br>0.0075/kwhr |
| Oil | 0.087/Gal | 140,000/Gal | 75 | 0.83 | 166 | 0.001/kwhr |
| Gas, Natural | 0.75-0.38/Mcu ft | 1,050/cu ft | 75 | 0.95-0.48 | 190-96 | 0.011-0.006/kwhr |
| Gas, Mfd. | 0.65/Mcu ft | 550/cu ft | 75 | 1.58 | 316 | 0.019/kwhr |

[a] Maximum demand = 100,000 Btu/hr; design temperature = 0 F; heating season = 5400 deg days.

*Automatic Switching* from heating to cooling and vice versa is at least a desirable feature, and will probably be a necessity. In mild weather, particularly, people do not remember to move manual controls, and as a result they suffer some discomfort.

*Compressor Unloading* and sequence starting of auxiliaries appears to be essential if single phase power is to be used and if starting currents are to be kept within acceptable values.

*Automatic Reversal of Refrigerant Flow* is one of the most attractive means of reversing the cycle from heating to cooling. With single coils, however, the system will tend to trap oil in one direction or the other, and additional complications of the circuit are necessary to prevent this.

*The Dissipation of Losses from Auxiliary Motors* is an important one, since it is desired to dissipate these losses into the house air in winter and into the outside air in summer.

*Noise and Vibration* are well-known problems, particularly in household appliances and equipment. The installation of equipment using several installed horsepower while maintaining noise levels in the order of 50 db is no easy task, and is a different problem from that imposed by the usual commercial installation.

*Serviceability* is a vital requirement for any piece of equipment in the home on which the occupant is depending for his source of heat. Any heat pump that is designed for use in a home must be designed for rapid and efficient service, so that operation can be resumed on short notice in case of failure.

### Advantages of the Heat Pump

Among the actual and potential advantages that a heat pump offers to the home owner may be mentioned the following:

1. A heat pump will furnish heat that will be clean and free from odor, excepting such odors as may be acquired on wet surfaces during summer air conditioning.
2. If desired the chimney can be eliminated, thus saving a substantial item of construction cost.
3. For those who are willing to break with precedent, fixed double glazed windows can be used, giving the immediate advantage of storm windows and eliminating the cost of the sliding sash.
4. Properly applied to avoid drafts, low grade heat will probably give greater comfort and less sensation of heat and cold than the higher grade heat normally supplied by conventional heating systems.
5. A single piece of equipment pro-

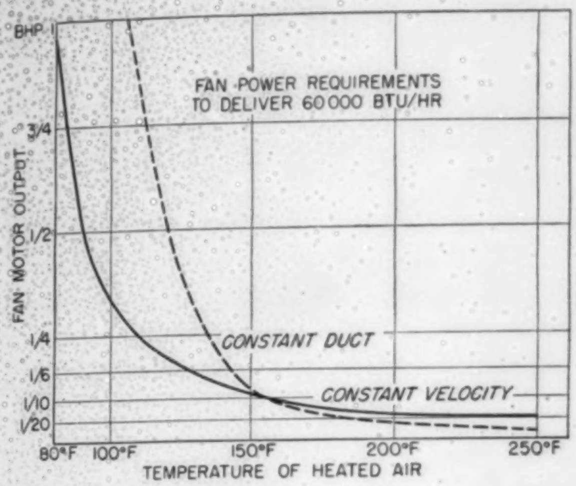


**Fig. 6.** *Fan power requirements to deliver 60,000 Btu per hour*

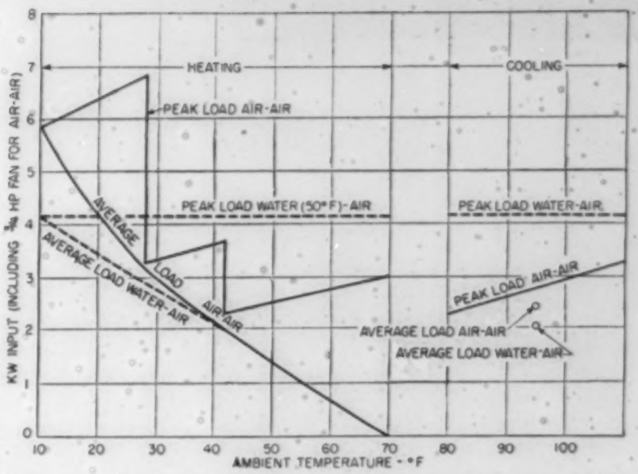


**Fig. 7.** *Peak electrical load may be substantially above average*

vides the air conditioning for both summer and winter, and this brings with it the advantage of dealing with a single service organization.

6. A single utility is used, saving the nuisance of additional fuel bills, and there is no fuel delivery problem.

7. There are no waste products to dispose of.

8. The heat pump will deliver heat quickly, since it does not involve the time lag necessary for warming up a boiler or furnace.

Most of these advantages to the ultimate user are real. However, it must be realized that the service which the heat pump offers can be obtained efficiently by other means now available. It does not at the present time compare as the automobile does to the horse and buggy. Consequently, it is doubtful that a substantial residential market will develop unless heat pump prices are reasonably competitive with other available means of providing year 'round air conditioning.

### Influence of the Housing Situation

There are factors in the present housing situation which will tend to retard the use of heat pumps in home heating.

As mentioned previously, the delivery of low grade heat requires a different design of duct system than that commonly used in present construction. As a consequence the installation of a heat pump in existing construction will tend to be expensive.

The basic economics of the heat pump indicate that its use in the home will almost certainly be limited to those installations in which the home owner desires summer air conditioning. A person in this financial class, if he already owns his home, will in many cases have it equipped with automatic heating and there may be little incentive for him to replace his existing system, particularly if it is relatively new.

One factor in the housing situation which is favorable to the heat pump is the current interest in panel heating. This makes use of low temperature heat and thus tends to become a natural partner of the heat pump. Unfortunately, panel heating cannot be easily used for summer cooling while retaining the advantage of panel heating for the winter operation.

In general, it seems fair to state that the immediate housing situation with its emphasis on low cost housing is not favorable to the use of the residential heat pump. Over the next few years, of course, this situation will improve as individuals are able to build the kind of houses they want at reasonable prices.

### Conclusions

It is with some hesitancy that any conclusions are drawn on a subject as complex and dynamic as this one; nevertheless, conclusions there should be if we are to make the kind of progress that should be made in the next few years. It is recognized that these conclusions are necessarily of short range, for the simple reason that many of the problems of the heat pump have not yet been actually solved, and their solution will almost certainly bring some changes in the general outlook. In addition there are the uncertainties of our general economic situation and these too may drastically change any picture that is drawn today. With these reservations, the following are the conclusions that seem to follow most naturally from this study:

1. The operating cost of the heat pump will ordinarily be competitive with that of other fuels in areas of low power cost.

2. The use of heat pumps in industrial processes will depend on the economics of each individual process and upon the economics of the region in which the plant is located. There is probably a good potential market in this field, although in this country it will be limited by the relative abundance of natural fuels.

3. The fundamental economic problem of the heat pump, as applied to a residence, is its first cost, which is related to such technical problems as the selection of the source of heat. It is emphasized that this problem has not yet been solved, and probably will not be solved until competitive designs of several types have been applied over a sufficient area to determine the economics involved. It is very likely that both types of units (air source and water source) will find their own best markets.

4. For year 'round air conditioning in the home, the most favorable field for the heat pump will be found:

(a) In those geographical areas where the design heating requirement most nearly equals the design cooling requirement.

(b) In those cases where the home owner desires and is willing and capable of paying for summer air conditioning. This places the market in the field of higher priced homes.

(c) In those cases where new construction is being made by the home owners themselves. In existing construction the cost of replacing existing equipment will tend to discourage the use of the heat pump.

5. There are fundamental and significant differences relating directly to the economy of first cost that differentiate the commercial installation from the residential installation. In general these differences strongly favor commercial installations for the application of heat pumps, and because of this it is believed that the commercial market will develop most rapidly and will tend to pave the way for use of the heat pump in residential heating.

# SANDWICH PANELS TESTED FOR THE SMALL HOUSE

***Resin-treated paper cores make a stiff, strong panel for structural use***

One of the few ideas to come from the once much-heralded "postwar technology" which really seems to hold promise is a new type of "sandwich panel" construction for small houses. Sandwich panels, which were developed during the war for high-speed aircraft, have been getting critical attention at the Forest Products Laboratory, in co-operation with the Housing and Home Finance Agency. So far they seem to justify the hopes held for them.

They differ from the sandwich type of thin-wall panels for large buildings in that they are structural, not merely a suspended wall. The basic concept, nevertheless, is quite similar: a pair of covers of some thin, strong sheet material, with a light insulating core. Here, however, the core must have stiffness to provide strength.

The material used for cores in the Forest Products Laboratory sandwich panels is paper — a fairly close relative of the brown kraft paper of the grocery bag. Large sheets of this paper are treated with a synthetic resin, run through a corrugating machine, and glued together in honeycomb fashion. Three different core patterns are shown in the small photographs below.

The covers, which are glued to such cores, may be thin metal, plywood, veneer, or other sheet material. With modern glues, the covers can be bonded on so firmly that the joint is likely to be stronger than the cover.

The resulting panel is stiff and strong, and also so light that a 4- by 8-ft. panel, 2 or 3 in. thick, can be handled by one man. They can be mass produced in factories with machinery already used for other purposes. And the honeycomb cores, with multitudes of air cells, are good insulating materials. The panels can be joined together into essentially frameless houses, serving for floors and roofs as well as walls. They might also be factory-finished, exterior as well as interior. Small wonder that they seem to hold the promise of big strides for the small house!

### Early Tests Encouraging

While engineers of the HHFA and the Forest Products Laboratory are carefully withholding final judgment on the panels and the construction system using them, the panels have been severely tested already, and results have been far from negative.

For an actual service test, specimen panels of different designs have been assembled into an outdoor structure resembling a small house. Panels have been tested for strength in load and deflection tests, and have been given accelerated aging tests to check possible effects of weathering. Also, of course, there was much investigation of resin coatings, methods of application, resistance to decay and moisture, and so on, before the panels were made up.

Results of the tests might be summed up as "so far so good," though a report* currently being issued by the HHFA simply says: "No attempt to evaluate or estimate the performance of the various sandwich panel constructions utilized in the exposure test unit is made in this report. Such an evaluation must await the accumulation of the necessary data over a period of years." The more academic tests, however, are reported, and the published report does include erection details (see sketches) and even a suggested plan to indicate how such panels might be assembled for a house.

### Strength Tests

Panels installed in the house-like unit were tested before erection to determine their deflection and span-deflection ra-

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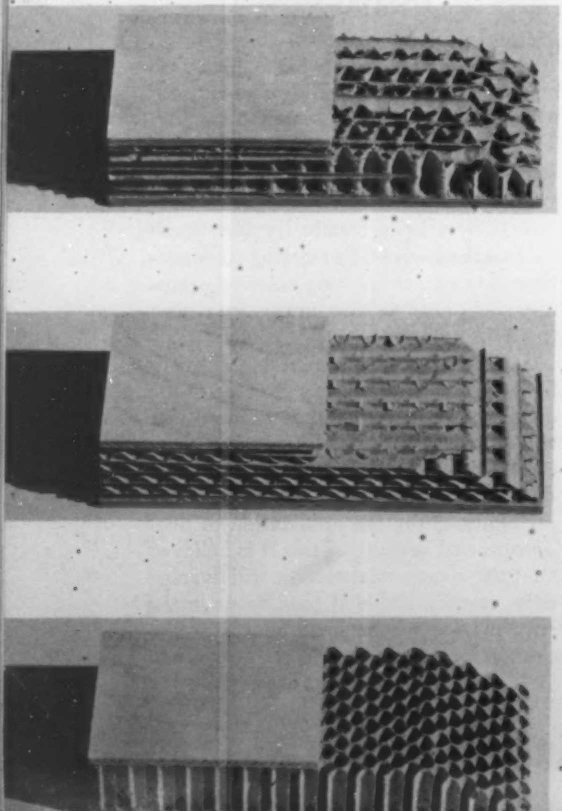
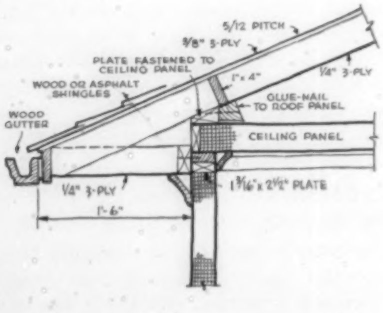
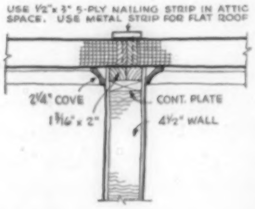
* Technical Paper #7, Technical Staff, HHFA—Physical Properties and Fabrication Details of Experimental Honeycomb Core Sandwich House Panels.

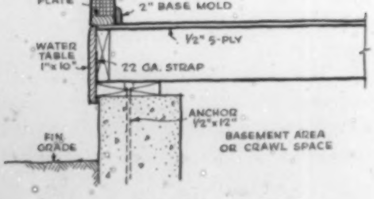
*Three types of cores in test panels*

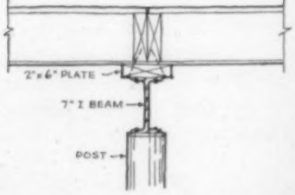


## SUGGESTED JOINT DETAILS




USE 1/2" x 3" 5-PLY NAILING STRIP IN ATTIC SPACE. USE METAL STRIP FOR FLAT ROOF
2 1/4" COVE
CONT. PLATE
1 3/16" x 2"
4 1/2" WALL





Sandwich core test panels being assembled in the laboratory

Copper tubing being installed in floor panels for test unit

tios at design loads. Laboratory-made wall panels met the requirement that the span-deflection ratio be not less than 270 under a design load of 20 lb. per sq. ft. Roof panels also were within the span-deflection ratio of 270. Floor panels had span-deflection ratios of about 500, at a load of 40 lb. per sq. ft.

### Accelerated Aging Tests

Five smaller specimens (all plywood facings) were subjected to aging tests as follows:

1. Immersed in water at 122° F. for 1 hour.
2. Sprayed with wet steam at 194° to 200° for 3 hours.
3. Stored in 10° for 20 hours.
4. Heated in dry air at 212°, 3 hours.
5. Sprayed with wet steam at 194° to 200° for 3 hours.
6. Heated in dry air at 212°, 18 hours.

This sequence of exposures was continued through six cycles, after which appearance of the specimens was noted and tests made to determine any change in strength properties, in comparison with panels not subjected to the aging tests.

The reduction in shear stress was about 20 to 30 per cent, but the weakest specimen after aging developed a shear stress more than six times that of design load. Reduction in stiffness was about 20 per cent, but this would not produce span-deflection ratios less than 270.

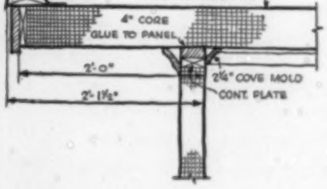
Appearance of the panels subjected to accelerated aging tests was studied. For this purpose, two pieces of ¾-in. Douglas fir, one edge-grain and one flat-grain; one of ¼-in. Douglas fir plywood; and one of ¼-in. Douglas fir plywood with paper overlays, were given the aging treatment. The plywood exhibited raised grain and many surface checks. The edge-grain Douglas fir showed some grain raising, but no checking. The flat-grain piece was severely checked and had pronounced raised grain. The sandwich specimens with paper overlays on the facings showed some slight raising of the grain but no surface checks. The plywood specimens were warped and bent, the plain wood specimens cupped a slight amount, but the sandwich specimens were straight.

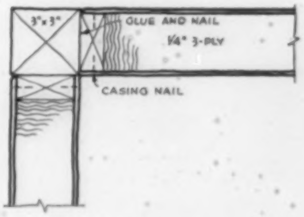
Wall panels under test include both 4- by 8-ft. panels with plywood and veneer facings, made in the laboratory, and 3- by 8-ft. panels with aluminum facings commercially fabricated. Some of the laboratory-made panels have resin-treated paper overlays. Cores are of the three types shown in the photographs. In the commercial aluminum-faced panels the cores are of a different type, mechanically expanded, with flutes perpendicular to the facing.

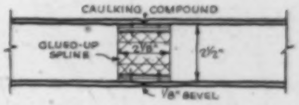
Laboratory-made wall panels are 3 in. thick. Roof panels are 4½ in. thick, and 4 by 14 ft. Some have ventilating flues 2 by 3 in. in section running the length of the panel. Floor panels are 6 in. deep, with ⅜-in., five-ply Douglas fir facings. Copper heating pipes were laid in these to study radiant heating.

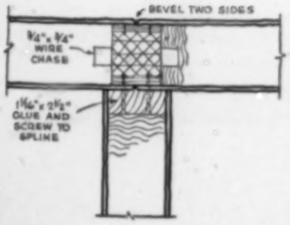
In the test unit the panels were joined loosely, so that each would be free to move independently. Suggested joints for more normal construction are shown in the diagrams.

## FOR ROOF, WALL, AND FLOOR PANELS

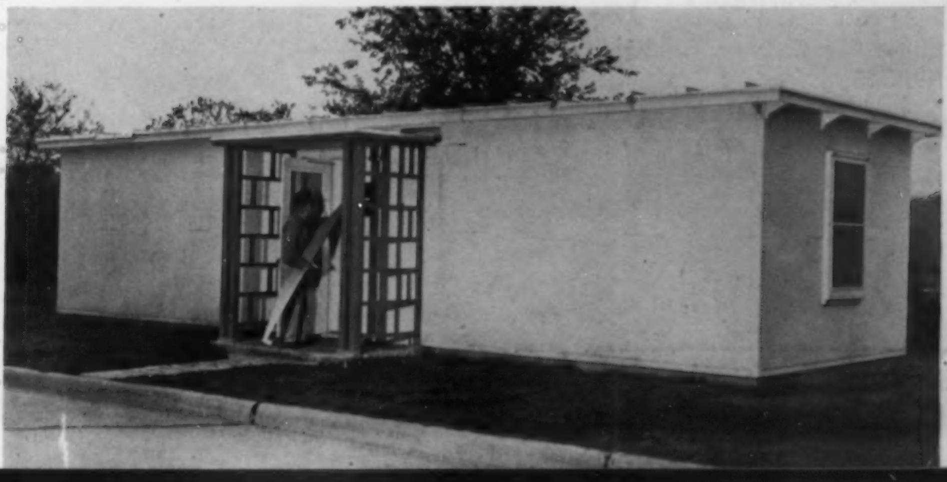








Test structure will subject different panels sections to actual use



# STORE LIGHTING PRACTICES

### *Recommendations of the Store Lighting Committee, Illuminating Engineering Society*

These charts, summarizing current store lighting recommendations for a wide variety of types of stores, are part of an extensive report, "Lighting Practices for Stores and Other Merchandising Areas," to be published in the June issue of *Illuminating Engineering*, as a report of the Store Lighting Committee of the Illuminating Engineering Society.

The study of lighting practices began many months ago, when Kenneth C. Welch, A. I. A., I. E. S., submitted his own recommendations to the Committee, of which he is a member. His original text was abstracted in "New Concepts of Store Lighting," Architectural Record, Aug., 1946.

These charts make recommendations for 34 types of stores, giving preferences of the Committee as to the color of light — the K value in degrees — the method of lighting, and the level in footcandles.

The report stresses the fact that footcandle measurements are but a convenient device, footcandle values being "merely a step in getting the end-product brightness." The actual brightness of an object is a function of the amount of light and the reflection coefficient of the object itself. The amount of light, expressed in footcandles, multiplied by the reflection factor, which is the percentage of light reflected, equals the brightness, measured in *footlamberts*. Nevertheless, footcandles can be simply calculated and predicted, and can easily be measured.

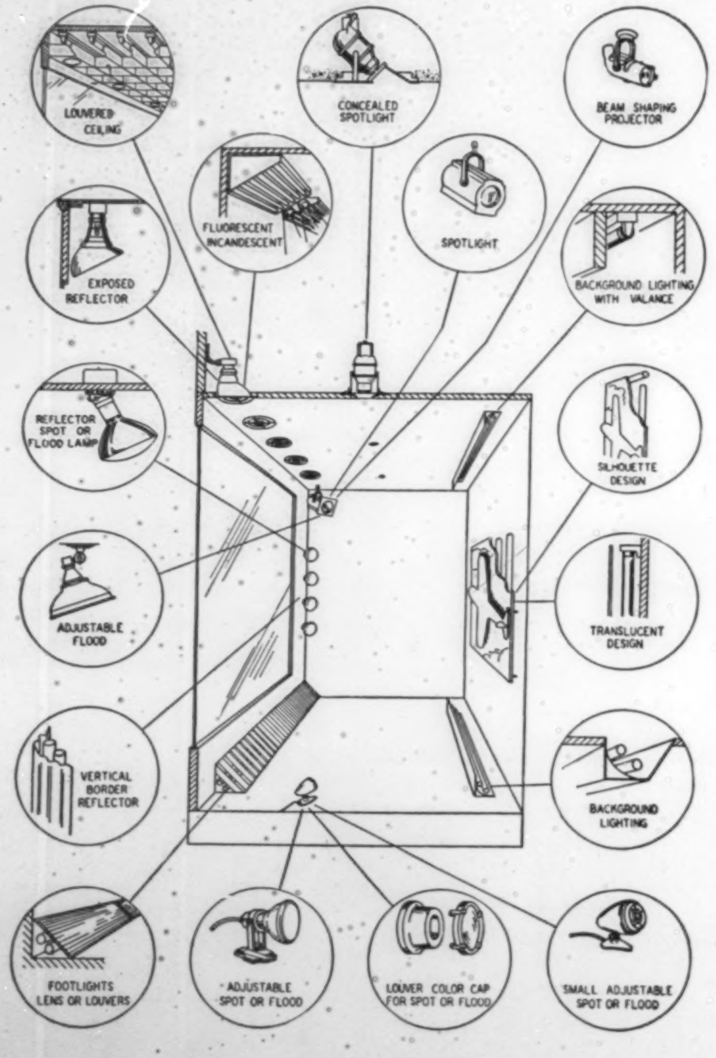
However, the report says:

"Brightness in either footlamberts or candles per square inch are as readily measured as footcandles. There are several types of meters usable for this purpose: the simplest is the indicating type that employs a light-sensitive cell calibrated to read footcandles. By employing a suitable correction factor, which compensates for the light lost through striking the glass cell cover at a grazing angle, these meters will measure the footlamberts of brightness of diffuse reflecting or transmitting surfaces.

"Other types of instruments measure brightness by direct comparison of two fields of brightness, a calibrated known brightness against the unknown. With a suitable system of filters usable over either the test or comparison brightness fields, these meters make possible a very wide range of brightness values that can be measured.

"Although brightness is the actual end product desired, it is not simple at the present stage of lighting science to completely specify store lighting in terms of brightness and, by calculation, arrive at those values.

"Many designers who are experienced in using footcandles as a criterion of lighting values, will still use them as a basis for store lighting design. If they are to take advantage of newest practices in lighting design, then calculations should include the brightness that will occur on major room surfaces, an estimate of the resulting brightness pattern in producing a pleasing interior, and an analysis of the relative brightnesses of kinds of merchandise sold in those areas."


LOUVERED CEILING
CONCEALED SPOTLIGHT
BEAM SHAPING PROJECTOR
FLUORESCENT INCANDESCENT
SPOTLIGHT
EXPOSED REFLECTOR
BACKGROUND LIGHTING WITH VALANCE
REFLECTOR SPOT OR FLOOD LAMP
SILHOUETTE DESIGN
ADJUSTABLE FLOOD
TRANSLUCENT DESIGN
VERTICAL BORDER REFLECTOR
BACKGROUND LIGHTING
FOOTLIGHTS LENS OR LOUVERS
ADJUSTABLE SPOT OR FLOOD
LOUVER COLOR CAP FOR SPOT OR FLOOD
SMALL ADJUSTABLE SPOT OR FLOOD

# STORE LIGHTING PRACTICES

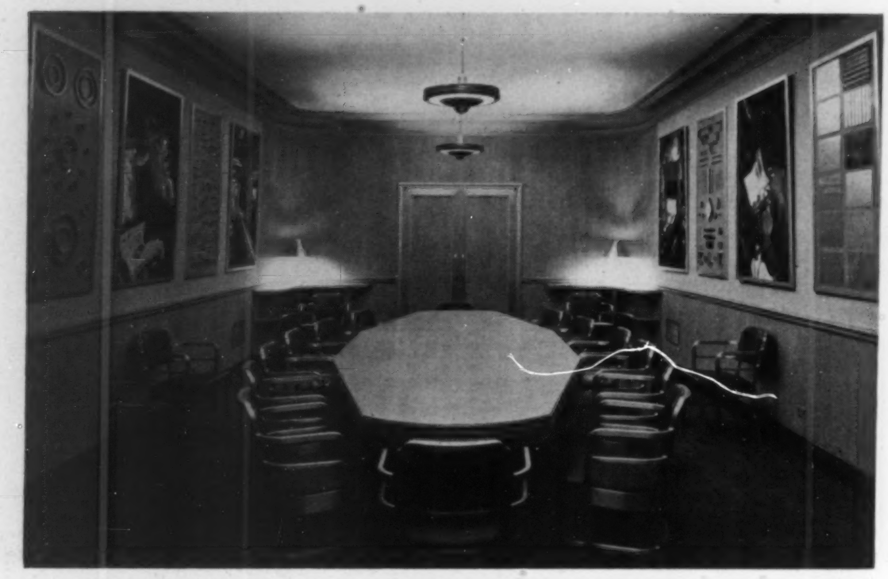
*Recommendations of the Store Lighting Committee, Illuminating Engineering Society*

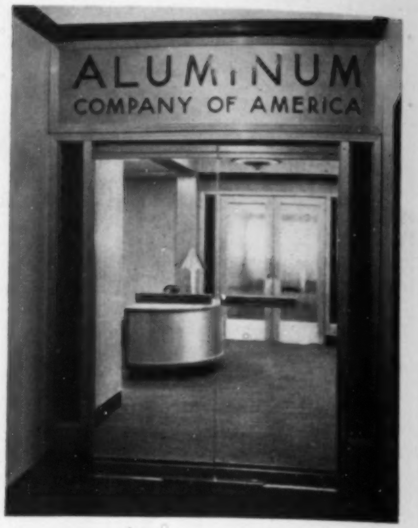
| Classification Number | Classification of Merchandise | Selling or Appraisal Lighting | | | | | | | | | | | | | | General Environmental Lighting | | | | | | | | | | | | | | Displayed Stock Lighting | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | | | | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | | | | Light Source Degrees K | | | | Method | Level in Foot-candles | | | | |
| | | 2800 | 3500 | 4500 | 6500 | Direct* | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 | 25 | 50 | 75 | 2800 | 3500 | 4500 | 6500 | Direct | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 | 25 | 50 | 75 | 2800 | 3500 | 4500 | 6500 | Direct | 25 | 50 | 100 | 150 | |
| 14 | Yards Goods & Trimmings | ─ | ━ | ━ | ─ | ○ | ○ | • | ○ | • | • | | | ━ | | ─ | ━ | ━ | ━ | | | | ○ | ○ | ○ | ━ | ━ | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | High values of illumination make it possible to see texture of material, quality, and pattern. For appraisal of texture, directional lighting is most effective. Suitable provision should be made for color matching. Attraction lighting is essential for showcases, shelves, and feature displays. Super appraisal zones of 100 to 300 footcandles are desirable for dark fabrics, particularly woolens. |
| 15 | Art Needlework | ─ | ━ | ━ | ─ | ○ | ○ | • | ○ | • | • | | | ━ | | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | ——— |
| 16 | Linens, Blankets | ━ | ━ | ─ | | ○ | ○ | • | ○ | | | | ━ | ━ | | ─ | ━ | ━ | ─ | | | | ○ | ○ | ○ | ━ | ━ | | | ─ | ─ | ━ | ━ | ○ | | ━ | ━ | | ——— |
| 17 | China, Glassware & Gifts | ─ | ━ | ━ | ━ | ○ | ○ | | | | | | ━ | ━ | | ─ | ━ | ━ | | | | • | • | ○ | ○ | ━ | ━ | | | ─ | ─ | ━ | ━ | ○ | | ━ | ━ | | Selling light should be from large area low brightness sources. China offers semi-specular surfaces and colorful merchandise. Niche displays with directional lighting disclose form and texture. Glassware has a beautiful appearance when displayed against a dark background and resting on a glass shelf lighted from beneath by daylight or 4500° fluorescent lamps. Other interesting effects can be secured through the use of back lighting, silhouette lighting, edge lighting and similar special applications. |
| 18 | Miscellaneous, Housewares & Toys<br>Sporting Goods<br>Auto Accessories<br>Small Appliances | ─ | ━ | ━ | ─ | ○ | ○ | • | ○ | • | • | | | ━ | | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | ─ | ○ | | ━ | ━ | | Usually open displayed stock using general lighting for display. Attraction lighting of shelf displays of small housewares, tools, guns, toys, and paints stimulates sales and adds to store brightness. Vertical lighting is important. With specular surfaces such as in small electrical appliances, it is important to avoid the use of only concentrated sources such as spot lights. Large low brightness highlights are valuable and can be produced as reflections or environmental brightnesses. |
| 19 | Radio & Phonographs | ━ | ━ | ─ | | • | • | • | ○ | ○ | ○ | | ━ | | | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | Wall displays of radios and phonographs can have local overhead valence lighting. Concentrated sources should be avoided. Special attention should be paid to accent lighting for record albums. |
| 20 | Major Appliances | ━ | ━ | ━ | | ○ | ○ | • | ○ | ○ | ○ | | | ━ | | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | Majority of this merchandise is white with metallic trim. High levels of attraction lighting necessary. Spotlighting is effective. |
| 21 | Garden Supplies, Building Supplies | ─ | ━ | ━ | ─ | ○ | ○ | • | ○ | • | • | | | ━ | | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ─ | ─ | ─ | ─ | ○ | | ━ | ━ | | Garden supplies often sold in open in Spring and Summer only. Can use floodlighting techniques.<br>Wall displays used for building supplies. Can use valence lighting. |
| 22 | Paint, Wallpaper | ━ | ─ | ━ | | ○ | ○ | ○ | • | | | | | ━ | ━ | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ─ | ━ | ─ | ○ | | ━ | ━ | | Displayed stock often uses general lighting. Good vertical surface lighting required for shelves and wall displays. Illuminated shelf niches can be used to advantage for specialty items. Floor and table displays of paints and impulse items should be spotlighted to attract attention. It is often desirable to show and appraise paint and wallpaper samples under the same color quality of white light as well as to illuminate them as in actual use. |
| 23 | Pictures, Frames Mirrors, Lampshades | ━ | ─ | ━ | | ○ | ○ | ○ | | | | | | ━ | | ━ | ━ | ━ | | | | | | ○ | ○ | ━ | ━ | | | ━ | | ━ | | ○ | | ━ | ━ | | Individual pictures may be featured by spotlighting. Majority of pictures and mirrors displayed on walls. Can use valence type lighting. Reflection of light sources in mirrors to be avoided as they are usually distracting. Lamps may provide their own illumination. Display much more effective if lamps are lighted. |
| 24 | Draperies and Curtains | ━ | ─ | ━ | | ○ | ○ | ○ | • | | | | | ━ | | ━ | ─ | ━ | | | | • | • | ○ | ○ | ━ | ━ | | | ━ | ─ | ━ | | ○ | | ━ | ━ | | Draperies and curtains are both displayed and appraised when hung vertically in most cases. Vertical surface perimeter lighting should be used with special features emphasized with flood or sopt lights. Glass curtains are very attractive when displayed against lighted backgrounds or artificially lighted windows. |

━ Preferred range   ─ Satisfactory range   ○ Preferred method   • Satisfactory method

See complete key to symbols on page 159

# PRODUCTS for Better Building





*Conference room (left) and entrance door (above) of Alcoa's new Cleveland offices*

## ALCOA OFFICES FEATURE ALUMINUM

Sheet aluminum, polished wood paneling and louvered glass form the decorative theme of the recently opened Cleveland sales offices of the Aluminum Company of America.

Occupying a large section of the 14th floor in the Terminal Tower building in Cleveland, the offices, as would be expected, make free use of aluminum sheet, plate and extruded shapes. Doors and frames, door hardware, thresholds, radiator and ventilator grilles, venetian blinds, trim on office partitions, moldings, pilasters, display panel frames, and the front door sign are some of the aluminum items used, and even the wastebaskets, table lamps and letter trays are of aluminum. A particularly dramatic feature is the aluminum conference table shown above. Irvin & Company were the decorators for the new suite.

## INSULATING MATERIAL

A new insulating product, *Kaylo Insulation*, forming the core of a wood faced door, resisted a one-hour fire in a demonstration staged recently at South River, N. J., the manufacturers report.

The demonstration door was a duplicate of a flush-type door with hardwood faces and incombustible core that was tested at the Underwriters' Laboratories in Chicago and given a one-hour fire rating.

Kaylo is a cellular compound of inorganic materials, combining light weight with structural strength. It was first developed by the Owens-Illinois Glass Company during the war and produced in limited quantities for the armed forces and essential industries. It will now be produced full-scale at the new South River plant of the American Structural Products Co., an Owens-Illinois subsidiary. It will be manufactured in two weights — 20 lb. and 11 lb. per cu. ft., the heavy density being intended for use where structural strength is paramount, the lighter for use where heat insulation is a necessity and structural strength is of secondary importance. The light density will serve as heat insulation in the form of heat insulating block, and later as pipe covering. The 20-lb. material will be used for production of fireproof doors, fireproof roof tile and other building purposes. A flush-type door with hardwood faces and a Kaylo insulating core, such as that used in the tests, will be manufactured and marketed soon by the U. S. Plywood Corp., Algoma, Wisc.

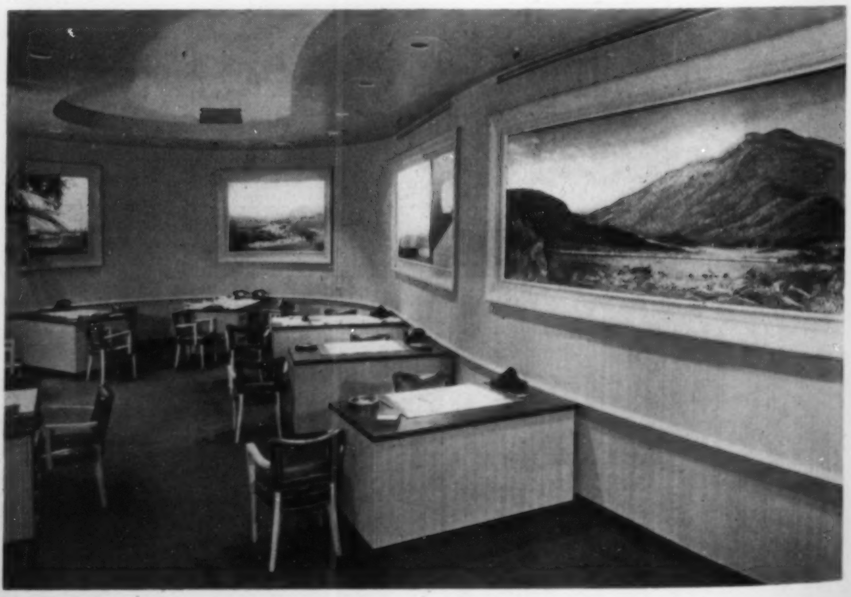
## TICKET OFFICE

A flowing curved wall of striated plywood is the dominant feature of the new Chesapeake and Ohio ticket office in Rockefeller Center, New York.

The curved wall not only creates an air of spaciousness, but encloses air conditioning equipment, lockers, etc. The Weldtex wall panels are front- and back-nailed to keep them from springing away from the curved framing. Dorothy Draper, Inc., designer; woodwork by Nuroco Woodwork, New Rochelle, N. Y.

(*Continued on page 184*)

*Curved plywood wall lends air of spaciousness to Chesapeake and Ohio's new office*



128,000 sq. ft. of 1 9/16" Cemesto provides insulation, interior finish, and great strength with light weight — applied as structural roof deck to the curved roof of Brunswig Drug Company's new plant, Los Angeles, California.

Architects:
Albert C. Martin
& Associates

# Better building ...in less time ...at lower cost

Today, in dozens of big construction jobs across the country, alert architects are demonstrating their skill in coping with rising construction costs, by specifying a material that gives their clients better building...in less time...at lower cost—

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*WHAT IT DOES*... Cemesto gives you a superior material for *sidewalls, roof decks,* and *interior partitions.*
It combines high thermal insulation with great structural strength in an integrated wall unit that furnishes both interior and exterior finish and requires no painting.

*YOU ARE INVITED* to write us for details on Cemesto applications in which you are interested. In the meantime, you'll find complete specifications on Cemesto in Sweet's file.

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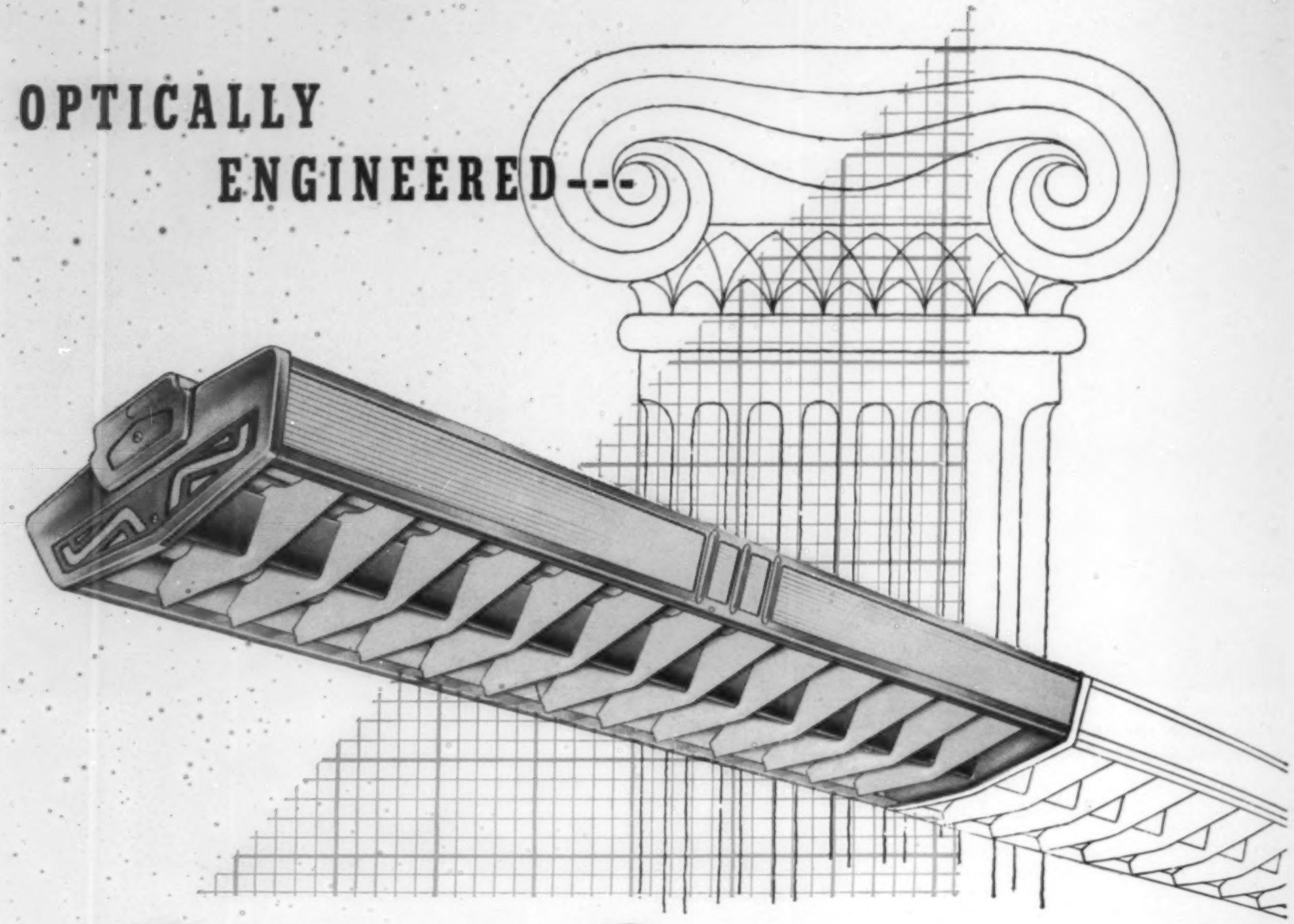
# OPTICALLY ENGINEERED---



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*The* ***VIZ-AID*** *for surface or suspension mounting . . . unit or continuous installation. Designed for two 40- or two 100-watt lamps, U. S. Patent Nos. D-138990, D-143641 and 2411952.*

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IT'S EASY TO SEE WHEN IT'S
**DAY-BRITE**
*Lighting*

# STORE LIGHTING PRACTICES *(Continued from page 153)*

***Recommendations of the Store Lighting Committee, Illuminating Engineering Society***

| Classification Number | Classification of Merchandise | Selling or Appraisal Lighting | | | | | | | | | | | | | | General Environmental Lighting | | | | | | | | | | | | | | Displayed Stock Lighting | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | | | | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | | | | Light Source Degrees K | | | | Method | Level in Foot-candles | | | | |
| | | 2800 | 3500 | 4500 | 6500 | Direct* | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 | 25 | 50 | 75 | 2800 | 3500 | 4500 | 6500 | Direct | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 | 25 | 50 | 75 | 2800 | 3500 | 4500 | 6500 | Direct | 25 | 50 | 100 | 150 | |
| 1 | Jewelry | ━ | | ━ | — | ○ | ○ | | • | | | | ━ | ━ | ━ | — | — | ━ | ━ | • | • | • | ○ | ○ | ○ | ━ | ━ | | | ━ | — | ━ | — | ○ | | ━ | ━ | | Combination of 4500° or 6500° fluorescent environmental lighting and concentrated filament downlighting maintains brilliant reflections in jewelry and the refractive effect of the faceted gems. Color of backgrounds important. Caution should be observed in lighting watch display cases to avoid drying the oil. |
| 2 | Silverware, Flat & Hollowware Clocks | ━ | — | ━ | ━ | • | • | • | ○ | ○ | ○ | ━ | ━ | | | — | — | ━ | ━ | • | • | • | ○ | ○ | ○ | ━ | ━ | | | — | — | ━ | ━ | ○ | | ━ | ━ | | Silverware and similar Merchandise depends to a large degree upon reflections of large area low brightness surfaces. When direct lighting is used this effect is obtained from large area luminous panels, coffers or similar architectural treatment. The environmental lighting can be reflected on the merchandise to produce the effect desired. Reflected colors should be cool to prevent tarnished look. |
| 3-a | Handbags, Gloves Hosiery | ━ | ━ | ━ | — | ○ | ○ | • | ○ | | | | ━ | ━ | | ━ | ━ | ━ | — | • | • | ○ | ○ | ○ | ○ | ━ | ━ | | | — | — | — | — | ○ | | ━ | ━ | | |
| 3-b | Handkerchiefs, Neckwear Ornamental Flowers Umbrellas | ━ | ━ | ━ | — | ○ | ○ | • | ○ | | | | ━ | ━ | | ━ | ━ | ━ | — | • | • | ○ | ○ | ○ | ○ | ━ | ━ | | | — | — | — | — | ○ | | ━ | ━ | | Mirror lighting is important in connection with neckwear and ornamental flowers. |
| 4 | Drugs, Cosmetics Toilet Articles, Stationery, Books Photographic Supplies Candy Nuts | — | ━ | | | ○ | ○ | ○ | ○ | • | • | | | ━ | ━ | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | — | ○ | | ━ | ━ | ━ | Mirror lighting often required for cosmetic section. Appraisal zone of up to 50-60 footcandles is needed for color matching. High level of illumination desirable over prescription counter. Vertical illumination necessary on shelves and counter displays for attention and appraisal. Small details of photographc equipment often important. Surface often specular. Required high value of diffuse appraisal lighting. Bright attractive atmosphere required for candy and nuts. Unusual brightness patterns and decorative lighting possible. Soft White lamps often preferred for unpackaged confections. Fluorescent lamps for case lighting important in reducing heating effects detrimental to confections, perfumes, tobacco, etc. May sometimes be located outside of case. |
| 5 | Men's Clothing, Hats, Sportswear | — | — | ━ | ━ | ○ | ○ | • | ○ | • | • | | | ━ | ━ | — | — | ━ | ━ | • | • | • | • | ○ | ○ | ━ | ━ | | | ━ | — | ━ | ━ | ○ | | ━ | ━ | ━ | High levels of illumination are necessary on dark material to see color, texture and workmanship. |
| 6 | Shoes | ━ | ━ | ━ | | ○ | ○ | • | ○ | | | | ━ | ━ | | — | — | ━ | ━ | • | • | • | • | ○ | ○ | ━ | ━ | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | Shoe stores require good horizontal illumination at the floor level to facilitate fitting and appraisal. It is best not to have a multiplicity of light sources reflected in the shoes. Combination of filament (conc. sources) and fluorescent often employed for general lighting. |
| 7 | Notions | ━ | ━ | ━ | | ○ | ○ | ○ | ○ | ○ | | | ━ | ━ | ━ | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | Where color matching is important equipment should be provided for this purpose. |
| 8 | Underwear, Negligees & Corsets | — | ━ | ━ | | ○ | ○ | • | ○ | • | • | | ━ | ━ | | ━ | ━ | — | — | ○ | ○ | ○ | ○ | • | • | ━ | ━ | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | Fitting room sales and environment important. See text on mirror lighting. |
| 9 | Millinery | | | | | See Remarks | | | | | | | | | | | | ━ | ━ | • | | | ○ | ○ | ○ | ━ | ━ | | | — | — | ━ | ━ | ○ | | ━ | ━ | | At the mirror it is important to illuminate both the hat and the face. Use warm tones on face with more nearly daylight colors on the hat. It is desirable to have light reflected from the table top to eliminate shadows on the face. |
| 10 | Coats, Women's and Misses' | — | — | ━ | ━ | ○ | ○ | • | • | | | | | ━ | ━ | ━ | ━ | — | — | • | • | • | • | ○ | ○ | ━ | ━ | | | ━ | — | ━ | ━ | ○ | | ━ | ━ | | |
| 11 | Furs | ━ | | ━ | ━ | ○ | ○ | • | ○ | • | • | | | ━ | ━ | | | ━ | ━ | | | | | ○ | ○ | ━ | ━ | | | ━ | | ━ | ━ | ○ | | — | — | | In the fur department the General Lighting should be psychologically cool since most furs are sold in summer months. Combination fluorescent and incandescent lighting is desirable to bring out sheen, texture and color. To emphasize browns and yellows, 2800° sources are suitable. Mirror lighting very important: darker furs require levels of 300 to 400 footcandles from concentrated sources. |
| 12 | Women's & Girls' Dresses, Sportswear, Uniforms | ━ | ━ | ━ | — | ○ | ○ | • | ○ | | | | ━ | ━ | | ━ | ━ | ━ | | • | • | • | ○ | ○ | ○ | ━ | ━ | | | ━ | ━ | ━ | — | ○ | | ━ | ━ | | See text on Mirror Lighting. Where sportswear is displayed it may be desirable to use 6500° light sources. |
| 13 | Infants' Wear & Infants' Furniture | ━ | ━ | ━ | | ○ | ○ | • | ○ | | | | ━ | ━ | | — | ━ | ━ | — | • | • | • | ○ | ○ | ○ | ━ | ━ | | | ━ | ━ | ━ | | ○ | | ━ | ━ | | |

━ Preferred range — Satisfactory range ○ Preferred method • Satisfactory method

(Continued on page 159)

See complete key to symbols on page 159

FITZGIBBONS
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# STORE LIGHTING PRACTICES

## *Recommendations of the Store Lighting Committee, Illuminating Engineering Society*

| Classification Number | Classification of Merchandise | Selling or Appraisal Lighting | | | | | | | | | | | General Environmental Lighting | | | | | | | | | | | Displayed Stock Lighting | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | Light Source Degrees K | | | | Method | | | | | | Level in Foot-candles | Light Source Degrees K | | | | Method | Level in Foot-candles | |
| | | 2800 | 3500 | 4500 | 6500 | Direct* | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 25 50 75 | 2800 | 3500 | 4500 | 6500 | Direct | Semi-Direct** | General Diffuse | General Diffuse Direct-Indirect | Semi-Indirect | Indirect | 10 25 50 75 | 2800 | 3500 | 4500 | 6500 | Direct | 25 50 100 150 | |
| 25 | Floor Coverings | ━ | ━ | ━ | — | | ○ | ○ | ○ | • | | 20–50 | | ━ | ━ | — | | | • | • | ○ | ○ | 10–25 | ━ | — | ━ | | ○ | 50–100 | Carpets and rugs are usually displayed on horizontal platforms which require high levels of horizontal illumination for appraisal of the dark materials, patterns, and textures. To show colors correctly dual quality lighting systems, using daylight fluorescent and filament lamps are advisable. When hung vertically, fluorescent perimeter lighting combined with incandescent reflectors may be used. |
| 26 | Furniture & Pianos | ━ | ━ | ━ | | | | | ○ | ○ | ○ | 15–50 | ━ | ━ | ━ | | | | | | | ○ | 10–25 | ━ | | | | ○ | 50–100 | To avoid specular reflections in polished wood and metal surfaces of furniture the lighting should be from diffused, large area, low brightness ceiling fixtures or from indirect sources. Highlights from concentrated sources are objectionable. Adequate illumination is required for rapid appraisal of details of fabrics and upholstery, style, color and design. A combination of cool fluorescent and diffused incandescent has proved satisfactory in most cases. |
| 27 | Musical Instruments | ━ | ━ | | | ○ | ○ | | | | | 25–50 | | ━ | ━ | | | | • | • | ○ | ○ | 10–25 | | ━ | ━ | | ○ | 50–100 | Usually openly displayed stock, using selling light for display. |
| 28 | Luggage | ━ | ━ | ━ | | ○ | ○ | • | ○ | | | 25–50 | | | ━ | ━ | • | • | • | • | ○ | ○ | 10–25 | ━ | ━ | ━ | | ○ | 50–100 | Usually openly displayed stock. Featured soot lighted displays important. |
| 29 | Baked Goods, Pantry Shops Novelty Package Goods | ━ | ━ | | | ○ | ○ | • | • | • | | 25–50 | | ━ | ━ | | | | • | • | ○ | ○ | 10–25 | ━ | ━ | ━ | | ○ | 50–100 | High brightness from general lighting gives the impression of sanitation and encourages good housekeeping. Incandescent selling lighting should be located over counters and display cases. With baked goods warm incandescent downlighting should mix with cool fluorescent case lighting to give good color value on goods. |
| 30 | Groceries Meat & Fish | ━ | ━ | ━ | — | • | • | ○ | ○ | | | 25–75 | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | — | ━ | ━ | — | ○ | 50–100 | Atmosphere of brightness and cleanliness important. Shelves and gondolas in self-service food stores require good vertical illumination. Spot lighting of impulse items important. High intensity near cashier's counter helps toward checking out and making correct change. Filament and Soft White fluorescent lighting preferred for meats and cheese display and sales areas. |
| 31 | Package Liquors Bottled Goods | | ━ | ━ | | | • | ○ | ○ | | | 25–50 | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | — | ━ | ━ | — | ○ | 50–100 | Goods displayed on shelves. Cornice shelf lighting may be used. Fixtures with strong vertical component desirable, arranged fairly close to walls. |
| 32 | Tobacco, Cigars Smokers' Supplies | — | ━ | ━ | | | • | ○ | ○ | | | 25–75 | Selling or Appraisal System may provide environmental lighting | | | | | | | | | | | | ━ | ━ | | ○ | 50–150 | Tobacco stock kept in showcases and wall cases. Humidifiers are used in cases. Heat and color important. Wall cases may be lighted by vertical component from ceiling fixtures or valence lighting may be used. |
| 33 | Florist Shop Cut Flowers | — | | ━ | ━ | • | • | ○ | ○ | | | 25–75 | | ━ | ━ | | | | • | • | • | ○ | 10–25 | — | | ━ | ━ | ○ | 50–150 | Lighting of daylight color quality is recommended for flowers in the natural setting. Fluorescent lamps suitable for refrigerated cases. Baskets, vases of flowers, urns, and table displays should be spot lighted. |
| 34 | Barber Shops & Beauty Parlors | ━ | ━ | | | | | ○ | ○ | | | 25–50 | ━ | ━ | | | | | • | • | ○ | ○ | 10–25 | | ━ | ━ | | ○ | 50–100 | Both horizontal and vertical components of lighting are essential in hair cutting. An attempt should be made in the barber shop to prevent reflections of bright sources in mirrors by proper location of luminaires with respect to chairs. In a beauty parlor mirror lighting should be given special consideration to furnish shadowless illumination of complementary color on the face. |

NOTES:

Abbreviations and symbols denote the following:

| | | |
|---|---|---|
| Direct: | Luminaire with 90% to 100% downward component | |
| Semi Direct: | " " 60% to 90% " " | |
| General Diffuse | " " 40% to 60% " " | Distributes light nearly uniformly in all directions. |
| General Diffuse Direct-Indirect | " " 40% to 60% " " | Produces very little light in a horizontal direction. |
| Semi Indirect | " " 10% to 40% " " | |
| Indirect | " " 0% to 10% " " | |

━━ Preferred range of values under "Level in ft-c." and range of color temperature under "Light Source Degrees K" that would be satisfactory depending on the competitive situation as to illumination values and individual choice as to color.
—— Satisfactory range of values.
○ Preferred method of installation.
• Satisfactory method of installation.
Symbols of equal weight indicate a choice of method.

* Where direct method is shown for Selling and Appraisal it is assumed that some environmental lighting is also used and floors, cases and other appointments are light in color.
** The use of semi-direct equipment with large component near the horizontal should be avoided in large rooms.

Values given under color temperature and footcandle levels for General Lighting, Selling Lighting and Displayed Stock lighting are for each of these individual elements of the system. The footcandle values are accumulative in the final result. For example, with 15 foot-candles of General Lighting and 40 foot-candles of Selling Lighting, the level of illumination in the selling area would be 55. Again in this store with Displayed Stock lighting of 100 foot-candles the resulting illumination in a glass showcase may amount to about 150 foot-candles or more depending on the amount of light transmitted through the glass.

When feature displays are used, the foot-candle values should be about double those recommended for Displayed Stock Lighting.

*(Continued from page 157)*

# MANUFACTURERS' LITERATURE

## COMPRESSORS

**Ice and Frost (Bulletin No. 100-D).** Introduces the "New Eclipse" compressors designed for air conditioning, water cooling, food storage, marine service, process plants and other refrigeration needs. Lists uses, sizes, capacities and construction specifications. Illustrated by photographs and detailed drawings. 8 pp. Frick Co., Waynesboro, Pa.

## DECORATIONS

**Decorative Uses of Copper and Brass (Bulletin No. 143).** Suggested applications of copper and bronze to augment the decorative motif of homes, hotels, restaurants, department stores, banks and other public buildings. Liberally illustrated with photographs of actual adaptations of copper and bronze for ornamental and practical purposes. 14 pp. Copper & Brass Research Assoc., 420 Lexington Ave., New York 17, N. Y.

## DRAINERS

**Cochrane Multiport Drainers (No. 4340).** Catalog of condensate drainers for evaporators, heaters, separators, coils or steam lines. Illustrated by working diagrams, cut-away views and charts of maximum discharge capacities, construction materials and dimensions. 8 pp. Cochrane Corp., 17th St. and Allegheny Ave., Philadelphia 32, Pa.

## ELECTRIC CONTROLS

**Federalog (No. 107).** A reference listing of motor controls, safety switches, service equipment, circuit breakers, bus duct, panelboards, and switchboards. Included are list prices, application data and an index of catalogue and page numbers. 102 pp., illus. Federal Electric Products Co., 50 Paris St., Newark 5, N. J.*

## ESCALATOR

**Introducing a Fine New Escalator.** Announcing the availability of an escalator designed especially for smaller stores, banks, restaurants, railroad stations, etc., this booklet contains a dimensional diagram labeled with space requirements. 8 pp., illus. Otis Elevator Co., 260 Eleventh Ave., New York 1, N. Y.*

## FACTORIES

**Two New Hosiery Mills.** Two articles, bound in booklet form, describing the modern factories built for the Sapphire Hosiery Corp., at Telford, Pa., and the Propper-McCallum Hosiery Co., at Florence, Mass. Both plants were designed with emphasis on efficiency, employee comfort, attractiveness and possible expansion needs. 8 pp., illus. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York 20, N. Y.

## FILTERS

**Staynew Filters.** Booklet describing the merits, construction and application of Staynew Pipeline, Intake, Liquid or Ventilation Filters. The "Quick Index" provides easy reference and convenient tables of sizes list models, overall dimensions and approximate shipping weights. 44 pp., illus. Dollinger Corp., Rochester 3, N. Y.

## FIRE PROTECTION

**The Exhaust-Water Supply Fire Protective System for Wellways.** Methods and results of research conducted by the Otis Elevator Co., Westinghouse Electric Corp., and Grinnell Co., Inc., to develop adequate fire protection for moving stairways. Booklet describes the new automatic sprinkler system of combatting the spread of flames and toxic gases through moving stair wellways. 15 pp., illus. Otis Elevator Co., 260 Eleventh Ave., New York 1, N. Y.*

## FURNITURE

**Dunbar for Modern.** Brief sketch of the history of modern furniture, its pioneers, its advantage and its growing popularity. Attractively illustrated with photographs of modern room settings, individual pieces, appropriate wallpapers, lamps and china. Catalog numbers of furniture pictured are included as well as designer and manufacturer credits on supplementary items. 24 pp. Dunbar Furniture Manufacturing Co., Berne, Indiana. *25 cents.*

## GAS BURNERS

**Industrial Gas Burners.** Describes two sizes of burners, the various combinations of which enable them to handle boiler capacities ranging from 10 h.p. to 3000 h.p. 40 pp., illus. Roberts-Gordon Appliance Corp., Buffalo, N. Y.

## INTER-COMMUNICATION

**Executone Electronic Communication (Form 255).** Folder accents the savings in time and money gained by providing for inter-communication facilities while buildings are still in the planning stage. Illustrated by photographs and drawings of typical installations. Offered to architects and engineers is a consultation service through on-the-spot inspection or by means of a company-supplied Communication Survey Chart. 4 pp. Executone, Inc., 415 Lexington Ave., New York 17, N. Y.*

## LIGHTING

**Cold Cathode Lighting.** A catalog including data on standard cold cathode fluorescent lamps, cold cathode industrial and commercial fluorescent lighting fixtures and accessories for series circuit cold cathode lighting. As they are issued, additional pages will be mailed to all original holders of this booklet. 11 pp., illus. Catho-Lite Co., Inc., 4122 W. Belvedere Ave., Baltimore 15, Md.

**Creating the Spectacular.** Catalog of focal lighting units for commercial and residential use, including operation diagrams, performance data and application recommendations. Fixtures are designed for recessed or wall installations. 8 pp., illus. Kurt Versen Co., 4 Slocum Ave., Englewood, N. J.

## METALWORK

**Ornamental Metalwork.** Profusely illustrated booklet of ornamental grilles, railings, balconies, gates and balustrades for home decoration as well as for use in business offices and other public buildings. Contains no text except for a short introduction emphasizing the fact that the decorations are made from readily available materials and that the manufacturer does no fabricating or installing. 16 pp. Julius Blum & Co., 532 W. 22nd St., New York 11, N. Y.*

## PIPING

**Practical Piping Layouts.** A compilation of twenty-five basic practical piping layouts published in the past as separate items. These fundamental layouts were designed for use as guides to practicing engineers, consultants and architects in the selection and placement of valves and may be easily altered to incorporate additional problems. Illustrated by isometric diagrams. 32 pp. Jenkins Brothers, 80 White St., New York 13, N. Y.

## STEEL

**Some Properties of Low Carbon 8½ Per Cent Nickel Steel.** Report, illustrated by charts and graphs, of the experiments which led to the development of low-carbon 8½ per cent nickel steel for use in low temperature processing. Although the new steel may also be

*(Continued on page 202)*

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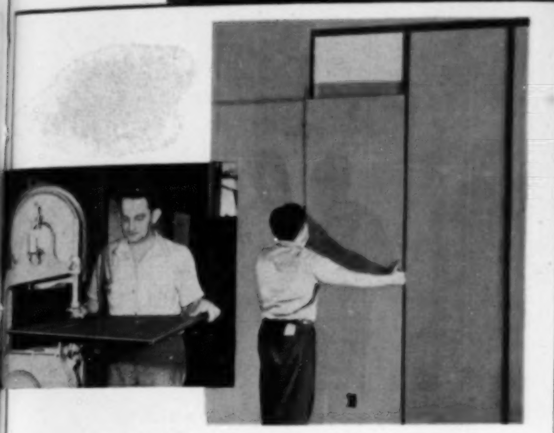
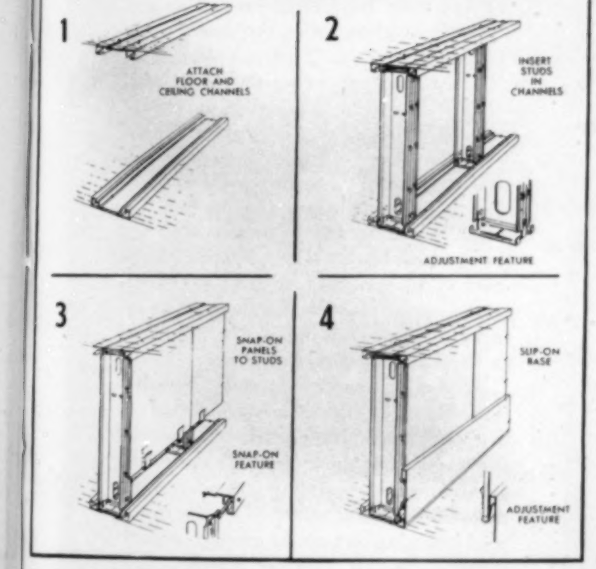
**Other product information in Sweet's File, 1948.*





**EASY ON THE EYES!** Martin-Parry Metlwal Movable Partitions and Panelings are factory finished in rich, natural wood grain reproductions or baked enamel finishes in a wide variety of colors. These beautiful surfaces will not chip, crack or craze . . . *do not reflect harsh, metallic light* . . . are Bonderized against rust and corrosion.

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**MODERN PRODUCTION FACILITIES!** Martin-Parry's modern, fully automatic production equipment . . . in our new Toledo plant (below) . . . insures uniformity necessary to preserve the interchangeability of Metlwal panels. Martin-Parry's painstaking quality-control pays dividends in long-wearing installations that hold maintenance costs to a new low.

**WRITE TODAY** for your copy of our latest catalog A-4. See how Metlwal can help you plan beautiful interiors—quickly cover interior walls and divide space—with *only a few standardized parts, from local distributors' warehouse stock.* Learn why Metlwal is easily movable without waste—easy to maintain—eliminates the need for plaster in new construction and for filler boards of other materials at ends or above cornice level. Just drop a line to: Martin-Parry Corp., Toledo 1, Ohio.

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## THE RECORD REPORTS

(Continued from page 18)

clude theaters, rehearsal rooms, workshops, studios, libraries and classrooms.

The Department of Architecture of the University of Texas has been reorganized as a School of Architecture consisting of the Department of Architecture and Planning and the Department of Architectural Engineering. Professor James J. Pollard, A.I.A., has been appointed Professor of Architectural Engineering and chairman of the Department. M. Robert Louard has joined the staff of the Department of Architecture and Planning as a visiting lecturer in design.

The California School of Design in Los Angeles, offering courses in Fine Arts and Architecture, opened its first semester on February 9th. Members of the faculty include: Leslie Thomas, founder and director; William Ferrari, architect; Max Band, painter; Edgardo Simone, sculptor and Arthur Millier, art critic for the Los Angeles Times.

### Research Bureaus

Columbia University has established the Institute for Urban Land Use and Housing Studies under the directorship of Dr. Ernest M. Fisher, professor of Urban Land Economics. Working with Dr. Fisher will be a board of university experts in economics, architecture, sociology, law and allied fields as well as an advisory board comprised of nationally known business men. The projects on which research will be undertaken are those which have a direct bearing on the more systematic and effective use of real estate in our cities and villages. The results of investigations will be published as they are completed.

An Audio-Visual Materials Consultation Bureau has been established at Wayne University to help commercial firms produce instructional materials. Companies interested in preparing films, records, manuals, charts, etc., for industrial training programs should address inquiries to Dr. Arthur Stenius, 5272 Second Blvd., Detroit 1, Mich.

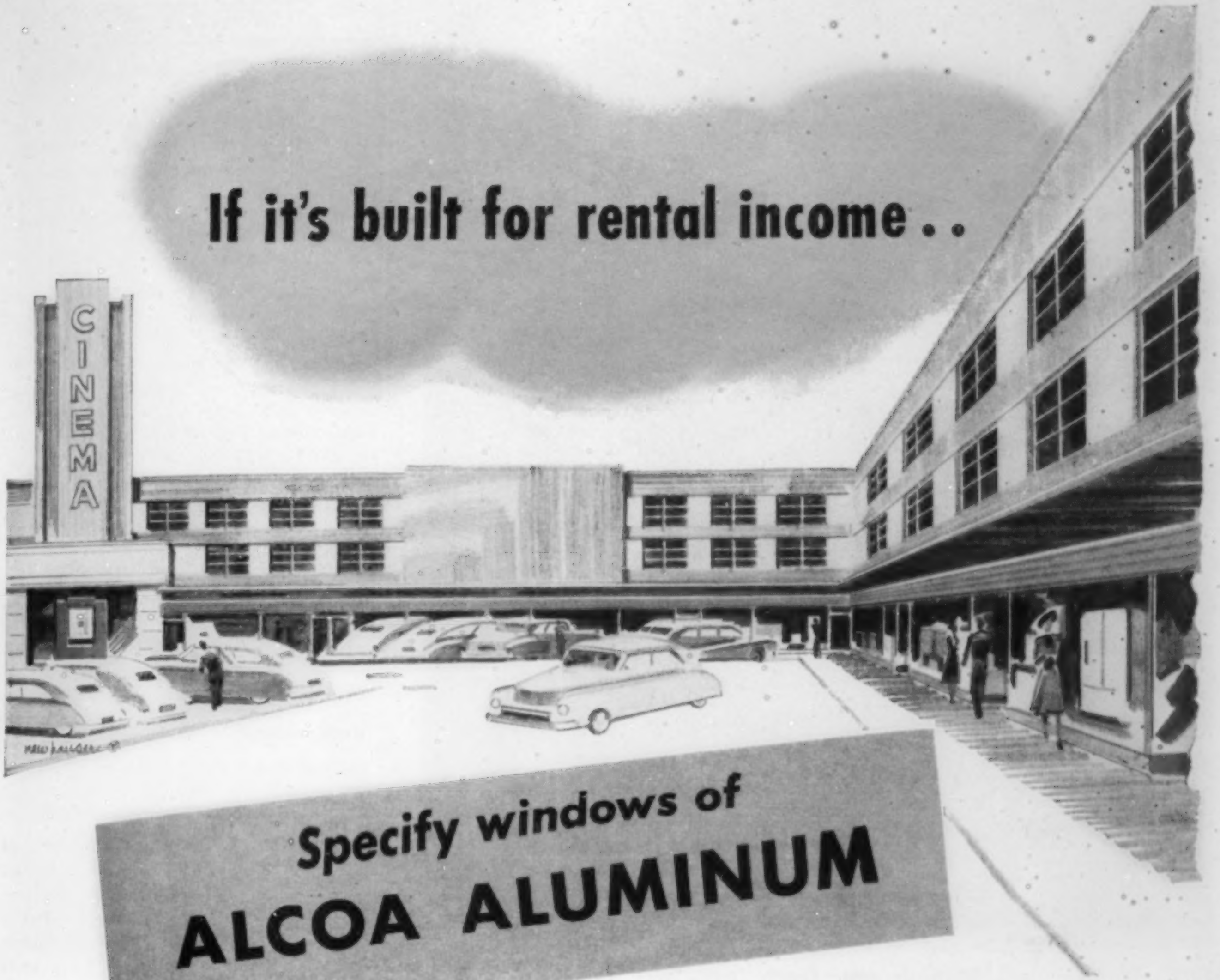
### Curriculum Changes

Beginning with the fall, 1948, semester, the curricula in architecture and architectural engineering at Pennsylvania State College will be of five years' duration.

A course in Architecture and Esthetic Appreciation has been added to the curriculum of the School of Art and the School of Engineering at Cooper Union. The new course is designed to develop the student's ability to visualize in three dimensions, to acquaint him with the

(Continued on page 164)

# If it's built for rental income..



## Specify windows of ALCOA ALUMINUM

Will that new building show a profit ten years from now . . . twenty years from now? Not if maintenance costs eat up the income! Before you build, be sure you cut window maintenance costs to the bone. Make sure your specifications call for quality windows made of Alcoa Aluminum.

Non-warping, corrosion-resistant aluminum windows eliminate painting costs; are easy to keep clean and attractive. Aluminum windows stay snug fitting and weathertight. Alcoa Aluminum can't shrink or swell; will not rot or rust away.

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STORE FRONTS

Michaels store fronts, push bars, kick plates and thresholds of extruded bronze, aluminum, stainless steel and other metals meet virtually every requirement. Many stock designs are available. However, Michaels is set up to faithfully reproduce in metal the most intricate creations of discriminating architects. Michaels store fronts are unusually attractive and inviting. Specially designed metal letters of harmonizing or contrasting colors add to the effectiveness of these modern store fronts. ¶Architects and builders are invited to consult us on all their requirements for ferrous and nonferrous building products. A partial list of Michaels products is shown below. If this list does not include the product you need, write us. Chances are we have it or can make it. Complete information on any or all products will be sent on request.

MICHAELS PRODUCTS

Bank Screens and Partitions
Welded Bronze Doors
Elevator Doors
Store Fronts
Lettering
Check Desks (standing and wall)
Lamp Standards
Marquises
Tablets and Signs
Name Plates
Astragals (adjustable)
Stair Railings (cast and wrought)
Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
MI-CO Parking Meters
Museum Trophy Cases

The MICHAELS ART BRONZE Company, 234 Scott St., Covington, Ky.

Member of the National Association of Ornamental Nonferrous Metals Manufacturers

★

## THE RECORD REPORTS

(Continued from page 162)

history of building techniques and to show the relationships between architect, engineer, economist and sociologist as they affect the design of various projects.

### Faculty Changes

James Clinton Peebles, dean of engineering at Illinois Institute of Technology, will retire at the end of August after an association with Illinois Tech and its predecessor institutions covering nearly half a century. After his retirement, Dean Peebles will devote his time to the compilation and preparation of a history of Armour and Lewis Institutes which were combined in 1940 to form Illinois Tech.

George E. Danforth has been appointed assistant to the director of the Department of Architecture at the Illinois Institute of Technology. Mr. Danforth has been an instructor in the department since his graduation from Illinois Tech in 1940.

### Competition

Students of the sub-senior classes of the School of Architecture at Carnegie Institute of Technology will compete for two cash prizes, offered by the Rust Engineering Company, for the best design of a plant which will produce 1500 homes per month. The plant will be located in Pittsburgh, Pa., and will produce homes built of cold-rolled light gauge steel panels.

Speakers, familiar with the problems involved, are assisting the students with lectures and criticism. Awards will be $100 for the first prize and $50 for the second.

### Exterior Murals

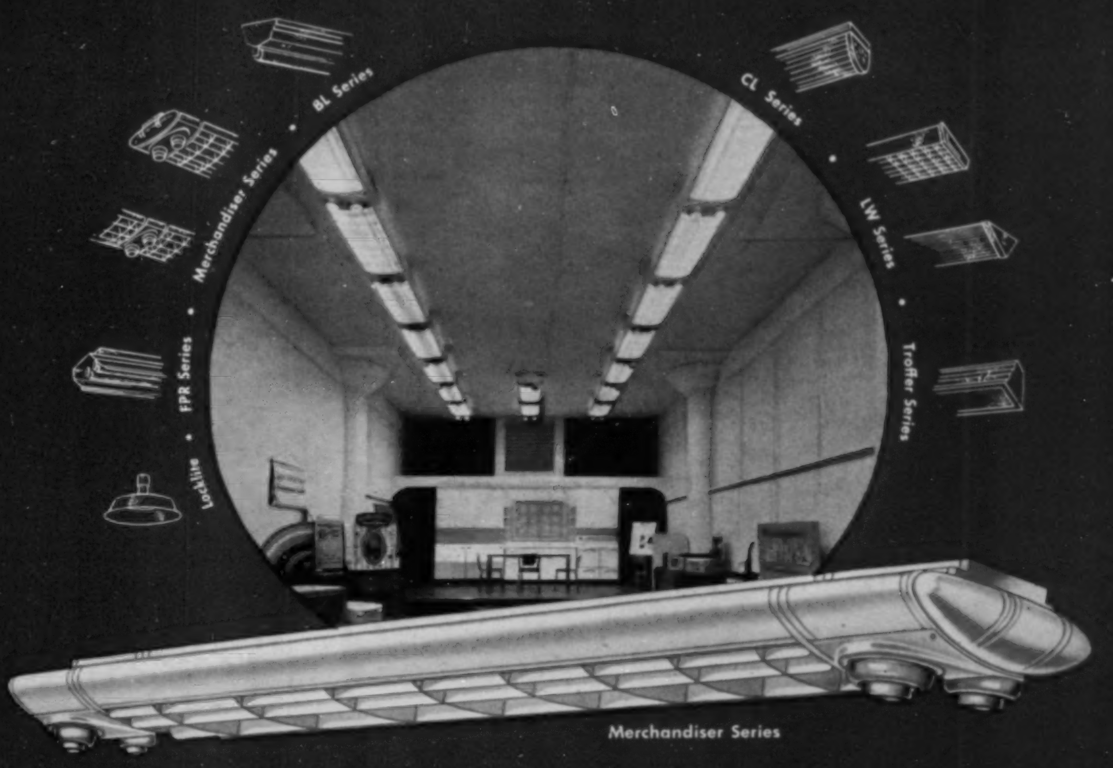
Abraham Joel Tobias, instructor in painting at Adelphi College, will do a series of six murals on the semi-exposed arcade between the college's two residence halls. Depicting the various arts and painted in a new medium, silicon ester, to withstand the ravages of weather and time, the murals will be 6 by 9 ft. each and will be executed in vivid colors.

### *RAZE OR PRESERVE?*

A storm of protest has arisen over the plan to erect a luxury apartment house on the site of "Genius Row" in Washington Square, New York, which has housed many of the country's most famous artists.

Residents of the district have countered with a proposal for the creation of a "living art center" which would pre-

(Continued on page 166)



# *For Stores* WESTINGHOUSE PLANNED LIGHTING PAYS

**HERE'S WHY.** What customers buy . . . how much and how often . . . depends upon how effectively your store lighting helps them *see* the merchandise. Planned store lighting provides the proper quantity and quality of illumination—shortens the time between demonstration and sale, aids in accurate appraisal of the product, prevents distracting glare, gives restful shopping atmosphere, and furnishes a flattering accent on the merchandise.

**THE RIGHT EQUIPMENT.** The Westinghouse Merchandiser combines efficient general lighting with brilliant incandescent spotlighting of merchandise. Five models for four 40-watt, two 100-watt and two 40-watt lamps. Designed to furnish graduated brightness between fluorescent light source and ceiling. Effective louvering of spotlight assembly minimizes glare.

Westinghouse makes a complete line of lighting equipment. Write for a copy of B-3788 for complete information on the Merchandiser. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-04164

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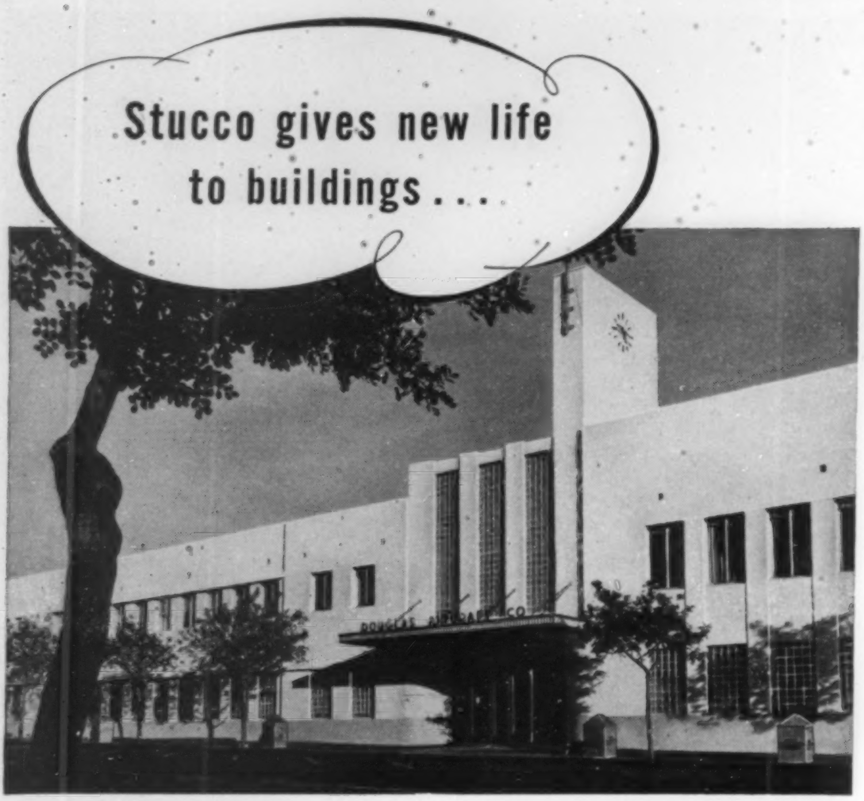

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puts new life in STUCCO!

**To give a building** a bright exterior finish the modern architect often calls for crisp, clean stucco . . . made with a matrix of Atlas White Cement.

Here's an excellent combination for clear, sparkling whiteness . . . and equally ideal for highlighting color values with pigments and aggregates. Besides stucco, Atlas White is used with attractive results in Terrazzo, Cement Paint and Architectural Concrete Slabs.

Atlas White complies with Federal and ASTM specifications for portland cement. It has the same advantages for concrete and is used in the same way. Atlas White concrete gives a clean, fresh appearance. Cleaning is easy. Maintenance costs stay low.

For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Sections 4B/2 and 13B/8, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, New York.

AR-C-22

FOR BEAUTY AND UTILITY
ATLAS WHITE CEMENT
FOR TERRAZZO, PAINT, SLABS, STUCCO

A UNIVERSAL ATLAS PRODUCT

"THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries*
*Sunday Evenings—ABC Network*

(*Continued from page 164*)

serve the historic buildings, furnish facilities for the exhibition of artists' memorabilia and provide living and working quarters for artists and writers at rentals within their means. The proposal was put forward by Bishop William T. Manning, president of the hastily organized Committee for the Washington Square Living Art Center. It has been approved by the City Planning Commission.

## WOULD CHANGE TAX LAW

To give owners of homes parity with owners of other property, the Realtors' Washington Committee of the National Association of Real Estate Boards is seeking three amendments to the Internal Revenue law. NAREB contends that the home owner should be allowed to deduct the depreciation on the home he occupies, that in exchanging one home for another he should be taxed only on such profit as is realized in cash, and that he should be permitted to deduct losses incurred through sale.

## NEW COMPETITIONS

### Arterial Road

The Town Planning Board of Stockholm, Sweden, has announced an open competition for the design of an arterial road which will carry all types of traffic between the districts of Sodermalm and Ostermalm. Also involved is a relatively extensive system of approaches. Four prizes, totaling 60,000 Swedish crowns, will be awarded. Further information may be obtained from any Swedish Embassy, Legation or Consulate. The competition closes April 1, 1949.

### Commemorative Medals

The City of New York has announced a nation-wide competition for the design of three medals which will be awarded as part of the city's 50th birthday celebration. The medals are the Medal of Honor of the City of New York, the Award of the Golden Anniversary of the City of New York, and the Departmental Medal. John J. Cunningham, director of the National Sculpture Society, is chairman of the jury which will select the winning designs. The winner in each group will be paid $1500 for the finished models of the obverse and reverse sides of the design.

The Medal of Honor will be struck in gold, and will be awarded annually for the notable and generous contribution to the advancement of the welfare of the city. It will be the highest honor the city can bestow upon a citizen.

The Medal of Award, to be struck in

(*Continued on page 168*)

# Specify Stainless Steel Sinks and build SATISFACTION

## REASONS FOR *Lustertone* SINKS

*THIS ILLUSTRATION headlined, "You can't wrap your kitchen in cellophane", will appear soon in ELKAY's House Beautiful advertising . . . one step in a national program to intensify consumer preference for quality-built stainless steel sinks.*

- **To millions, stainless steel means permanence, sanitation and lasting beauty.**
- **One-piece bonded construction eliminates all seams — no crevices to harbor dirt and germs.**
- **Housewives know that greater resilience means safer dishwashing — less hazard of breaking fine china.**
- **Hot utensils can't mar the lustrous surface. Never a crack or craze from waste food disposer or automatic dishwasher action.**
- **Will not chip, peel, flake or wear off — never can discolor.**
- **Guaranteed to outlast any home or building.**

### FACTS YOU SHOULD KNOW:

Available from stock in 7 popular sizes.
Single Bowl — 54, 60, 72 inches
Double Bowl — 66, 72, 84, 96 inches
To fit any cabinet — or as complete unit.

●

Custom built in any size, shape or arrangement.

●

No. 18 Gauge Stainless Steel — satin finish for lasting beauty and easier cleaning.

●

Seamless — one-piece bonded construction — no overlapping or soldered edges.

●

Corners and intersection rounded to large radius (no sharp angles).

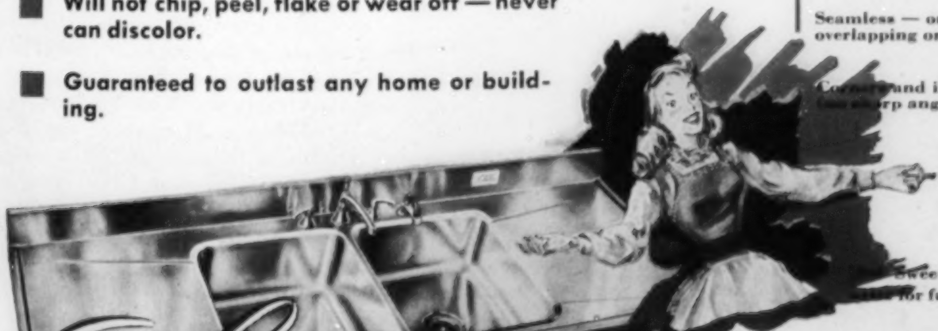
●

Structurally reinforced and scientifically sound-deadened by master craftsmen.

### CONSULT

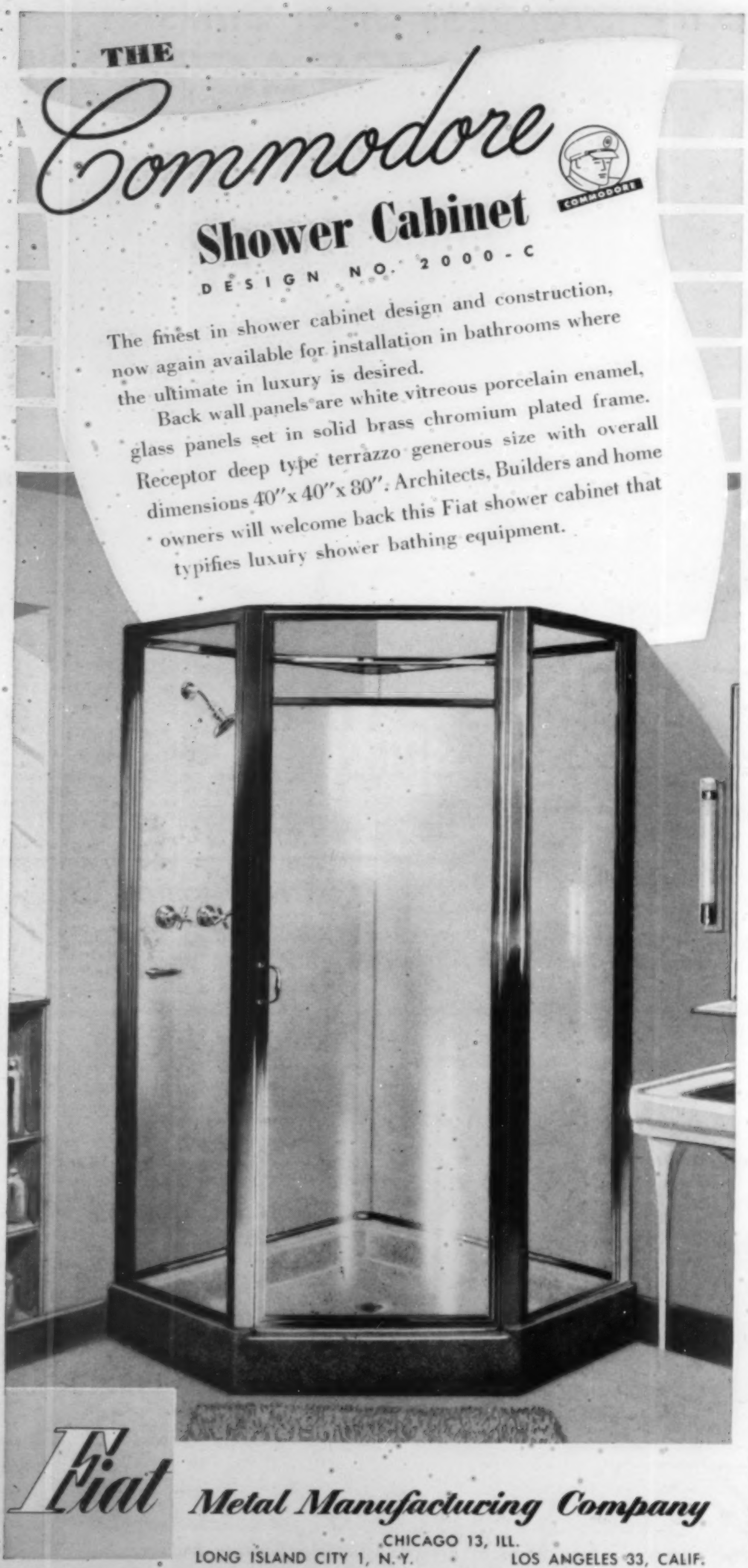
Sweet's Architectural File — 23a/6, or write for further facts.

**ELKAY MANUFACTURING CO.**
1870 S. 54th Avenue, Chicago 50



***Lustertone* STAINLESS STEEL SINKS**

*ELKAY for over a quarter century — first choice of America's Leading Sanitary Engineers*



THE Commodore Shower Cabinet

DESIGN NO. 2000-C

The finest in shower cabinet design and construction, now again available for installation in bathrooms where the ultimate in luxury is desired.

Back wall panels are white vitreous porcelain enamel, glass panels set in solid brass chromium plated frame. Receptor deep type terrazzo generous size with overall dimensions 40"x 40"x 80". Architects, Builders and home owners will welcome back this Fiat shower cabinet that typifies luxury shower bathing equipment.

Fiat Metal Manufacturing Company

CHICAGO 13, ILL.
LONG ISLAND CITY 1, N.Y. • LOS ANGELES 33, CALIF.

In Canada Fiat showers are manufactured by Porcelain and Metal Products, Ltd., Orillia, Ont.

## THE RECORD REPORTS

(Continued from page 166)

silver and bronze, will be given for outstanding displays in the Anniversary Exposition at Grand Central Palace next summer.

The Departmental Medal, also to be struck in silver and bronze, will be awarded to city departments and officials in recognition of contributions to the welfare of the city and for exceptional exhibitions.

Further information about the competition may be obtained from the Mayor's Committee, 1 E. 60th St., New York 22. Entries must be submitted by May 15th.

### FACT-FINDING PROGRAM

A fact-finding program to foster better public understanding of the building industry has been inaugurated by the newly formed Construction Industry Information Committee. Financial backing for the program is being provided by contributions from manufacturers of building materials and equipment.

Research reports, compiled under the direction of Miles L. Colean, well known housing economist, will cover such subjects as: material production, cost trends, trends in worker productivity, labor supply, labor saving methods, building code revisions, and relation of general price inflation to construction costs.

### CONSTRUCTION REPORT

The dollar volume of construction contracts awarded during January in the 37 states east of the Rocky Mountains set a new high mark for the month, F. W. Dodge statistics show. Although January awards were 2 per cent less than the total for December, the $615,206,000 volume represented a gain of 8 per cent over the same month last year.

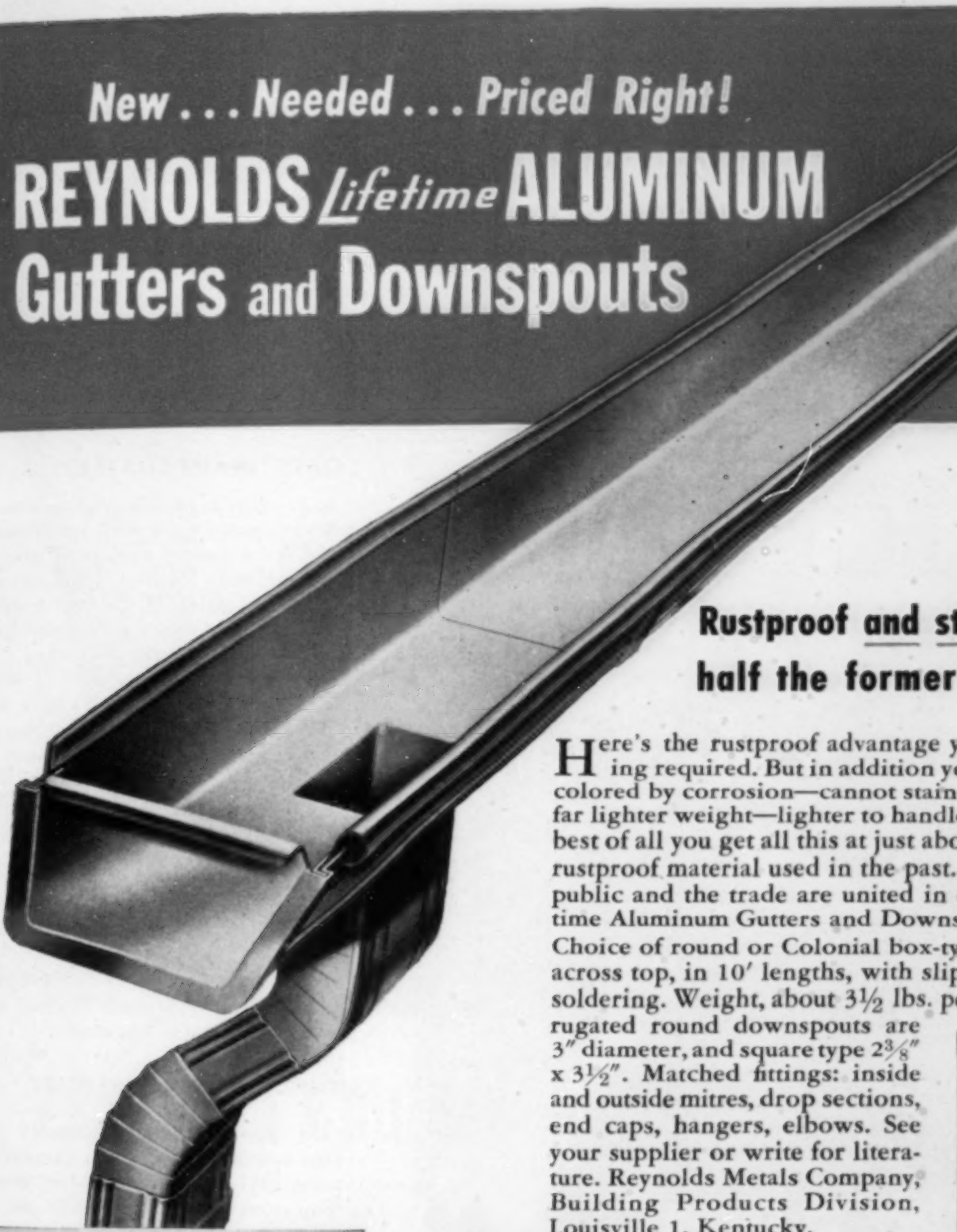
Ten of the 15 Dodge reporting regions showed gains over January, 1948, with increases of more than 50 per cent reported for upstate New York, western Pennsylvania and West Virginia, southern Michigan, Minnesota, and North and South Dakota. Declines from last January ranging from 17 to 35 per cent were reported for New England, metropolitan New York and northern New Jersey, southwestern Ohio and Kentucky, Louisiana and Mississippi, and Texas.

January's nonresidential contracts awarded for projects east of the Rockies amounted to $240,544,000, showing a gain of 20 per cent over January of last year. Residential contracts totaled $238,098,000, showing an 8 per cent decline from January a year ago, but a 5 per cent gain over December.

(Continued on page 170)

## New . . . Needed . . . Priced Right!

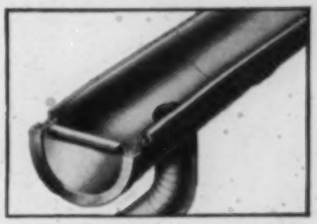
# REYNOLDS *Lifetime* ALUMINUM Gutters and Downspouts



## Rustproof and stainproof gutters at half the former "rustproof price"!

Here's the rustproof advantage you recommend—no painting required. But in addition you get gutters that are never colored by corrosion—cannot stain a wall. In addition you get far lighter weight—lighter to handle, lighter on the eaves. And best of all you get all this at just about *half the price* of the only rustproof material used in the past. Any wonder that both the public and the trade are united in demanding Reynolds Lifetime Aluminum Gutters and Downspouts!

Choice of round or Colonial box-type design. Both gutters 5" across top, in 10' lengths, with slip-joint "S" connectors—no soldering. Weight, about 3½ lbs. per length. Round and corrugated round downspouts are 3" diameter, and square type 2⅜" x 3½". Matched fittings: inside and outside mitres, drop sections, end caps, hangers, elbows. See your supplier or write for literature. Reynolds Metals Company, Building Products Division, Louisville 1, Kentucky.



## . . . and for every built-up roof, new or old!

## REYNOLDS *Embossed* ALUMINUM Built-up Roofing!

**.004" embossed aluminum in 36" rolls, 10 squares per roll.**

**As a re-cap on old roofs or in 2- and 3-ply new roofs it's a barrier against all weather *plus* the sun's radiant heat. Preserves the life of asphalt . . . keeps interiors up to 15° cooler in summer . . . lightens roof load by 400 to 500 pounds per square compared with slag or gravel dressed roofs. Booklet with full specifications on request . . . address above.**

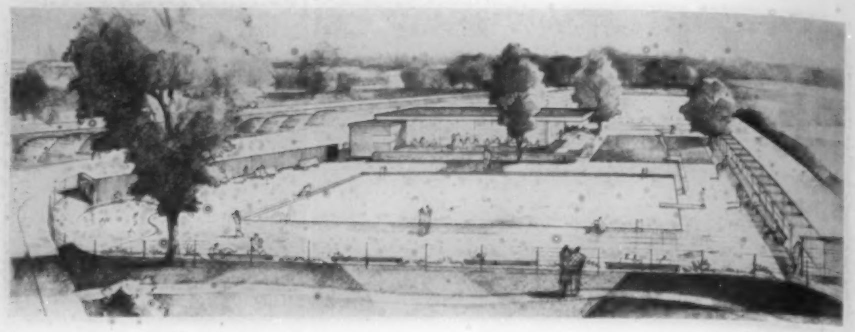
IF YOU SEE RUST
YOU KNOW IT'S NOT
ALUMINUM

REYNOLDS METALS

REYNOLDS
*Lifetime* ALUMINUM
BUILDING PRODUCTS

REYNOLDS PIONEERING MADE ALUMINUM COMPETITIVE . . . *TAKE ADVANTAGE OF IT!*

*Recreational facilities planned for the exclusive use of Joseph J. Brunetti's 700-family apartment project in Maywood, N.J., designed by Kelly & Gruzen, New York architects. The development also will have a circular shopping center, designed by Kelly & Gruzen (see ARCHITECTURAL RECORD, Feb., '48, p. 10)*



### CODES INADEQUATE?

In an analysis of industrial ventilation codes presented to the 54th annual meeting of the American Society of Heating and Ventilating Engineers, Knowlton J. Caplan and Allen D. Brandt reported that state legal requirements in regard to factory ventilation are either nonexistent or inadequate. Eleven states have no codes at all, and 25 have only very general requirements, their survey showed. Six states have what may be regarded as a reasonably complete code or set of standards covering a number of typical operations or exhaust hood types.

Messrs. Caplan and Brandt recommend that specific and quantitative design criteria should not be included in legislation, but that such data, standards and recommendations be incorporated in regulations or in advisory standards accompanying regulations in order that greater flexibility be obtained.

### HOME BUILDING REPORT

The private building industry provided new homes in proper proportions during 1947 for families in every income group except the lowest tenth and the highest fifth of the country's income brackets, according to Melvin H. Baker, chairman of the Construction Industry Information Committee.

"By the third quarter of the year, the industry also was starting new homes at the record-breaking rate of one million units a year, surpassing the previous high record set in 1925," Mr. Baker said.

### NAME CHANGED

In keeping with the expansion of its functions, the Vermiculite Research Institute of Evanston, Ill., has changed its name to the Vermiculite Institute. Its activities will no longer be confined to research, but will include the promotion and publicizing of vermiculite products in cooperation with allied industries in the construction field.

Edward R. Murphy, a civil engineer

(*Continued on page 176*)

ARCHITECTS-DEALERS

*In brief* BUILDERS

Your Best Date In '48

MORE
BEAUTIFUL
AND
LASTS
LONGER

HERE'S HOW TO DATE HER

Arrangements for a profitable lifetime date can be made by writing Metal Tile Products, Inc., Hastings, Michigan, for full information. Once you have seen Hastings Alumitile, checked and tested it, you'll adopt it as your steady date.

*Hastings Alumitile is fireproof, waterproof, chip-proof, impervious to alkali, won't crack or peel and resists stain.*

Miss Alumitile!!

"In making plans for restaurants, snack bars, taverns, homes, etc., don't fail to investigate Hastings Alumitile for the wall covering," says our attractive Miss Alumitile. For certain, it will be your best date in '48. Available in 14 rich beautiful colors, including outside corners and wall plates for electrical outlets. Virtually unlimited color combinations arranged with Hastings Alumitile. Easy to apply and will last the lifetime of the building.

METAL TILE PRODUCTS CO., INC.

HASTINGS, MICHIGAN.

For free color chart and the name of your closest distributor simply mail this coupon today.

*Send to*
METAL TILE PRODUCTS, INC.,
Hastings, Michigan
*Name*..........
*Business*..........
*Address*..........
*City*.......... *State*..........

# WHEN A SMART FLOOR IS SPECIFIED THE CHOICE IS

Salon Lentheric
Fifth Avenue

# DANBURY RUBBER TILE

Smartness and sophistication are keynotes in the design theme of Salon Lentheric. But Danbury Rubber Tile was selected for many more reasons than appearance alone. True, it has an incomparable richness of color and a smooth, lustrous finish that makes it equal to the most glamorous assignment.

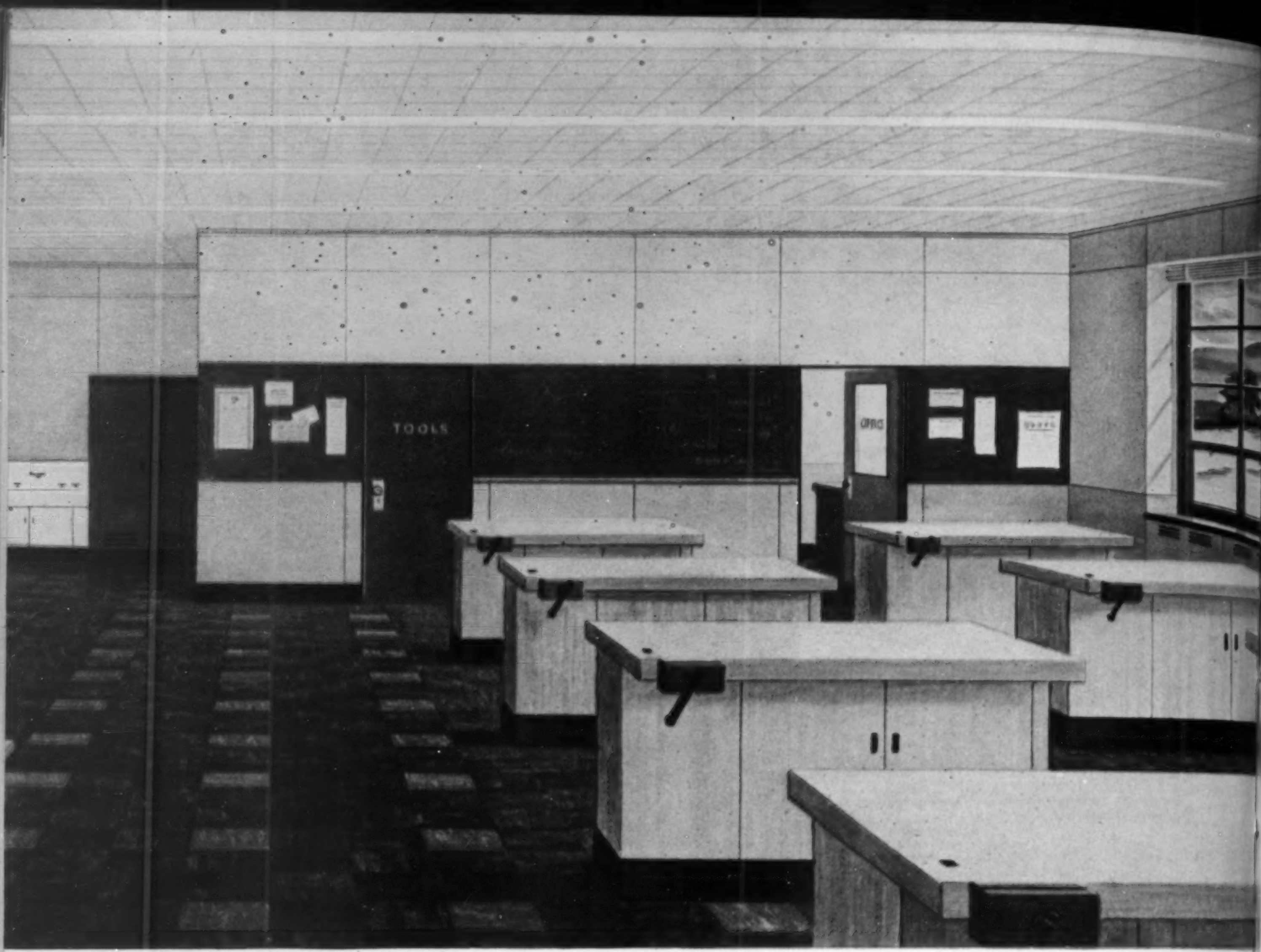
Just as important, however, is the fact that Danbury Rubber Tile's decorative advantages are coupled with such practical features as easy maintenance, durability and waterproofness. Traffic does not develop worn spots, because the color in Danbury Rubber Tile goes all the way through. And it's quiet and comfortable underfoot, a boon to customer and operator alike.

For a smart floor in every way, specify Danbury Rubber Tile.

*Have you a copy of the Danbury catalog? Write for one if you haven't. It shows 23 of our 28 colors and a selection of "architects" patterns.*

**The DANBURY RUBBER COMPANY Inc.**
DANBURY • CONNECTICUT

**DANBURY**



## Use all 3 products—Walls, Ceilings, Floors—for Johns-Manville Unit Construction . . .

With this new method of interior construction, you can meet the problem of ever-changing space needs.

You can provide for endless revisions of space-use—*at low cost*. You can keep expanding, converting, or subdividing rooms as often as conditions require . . . with little or no interruption to routine activities!

Moreover, the J-M Unit Construction system now makes the *complete interior* available under *one* specification, *one* manufacturer's responsibility.

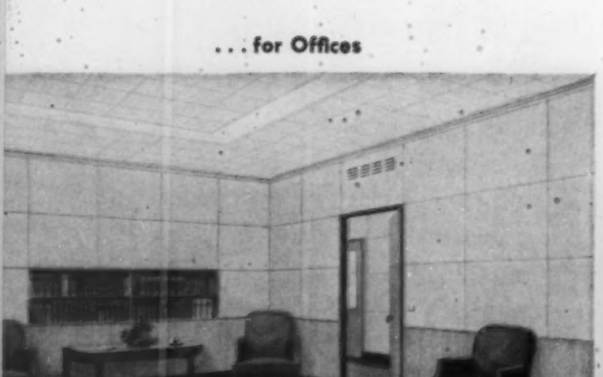
Three Johns-Manville materials, described at right, are the basis of this revolutionary development. The asbestos Transite Walls are *movable*, 100% salvageable. The Acoustical Ceiling Units are *demountable* . . . can readily be taken down and relocated as desired. And the Asphalt Tile Floors consist of small units which permit easy extension of the floor to meet changing conditions.

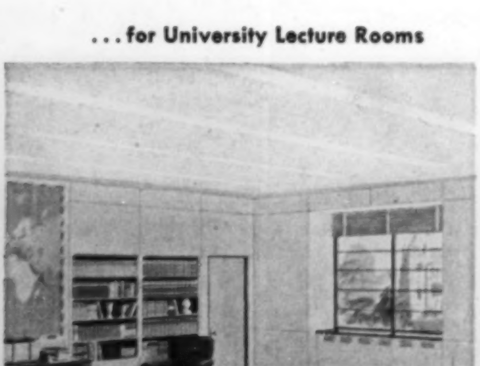
Write for colorful brochure, giving full details on the remarkable *flexibility* of J-M Unit Construction.

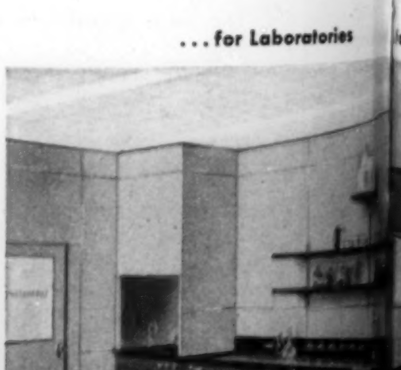
**. . . for Offices**

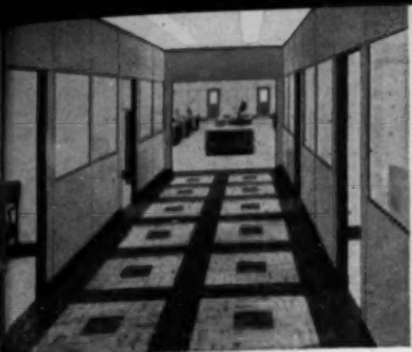
**. . . for University Lecture Rooms**

**. . . for Laboratories**

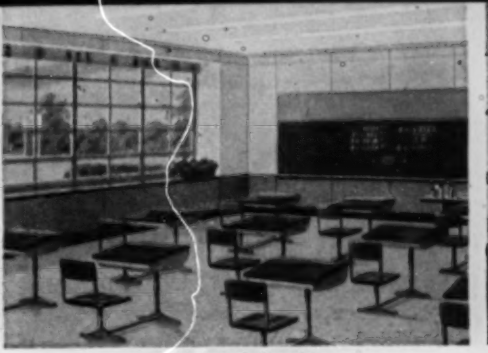








. . . for Institutions and Hospitals



. . . for Schools

. . . for Factory Areas

# *Interiors today* that provide for tomorrow!

## 1. TRANSITE WALLS—*Movable!*

Rooms when and where you want them . . . that's the magic of Johns-Manville Transite Walls—the attractive and sturdy asbestos walls that are *movable*. Now you'll never again need to send partition walls to the dump every time space changes are required!

With the least inconvenience—almost *overnight*—you can enlarge, decrease, or rearrange areas as often as your needs require. Transite movable panels are easy to handle, readily assembled, interchangeable, and can be used over and over again. Made of asbestos and cement, Transite Walls have all the qualities of solid and permanent construction. They provide rigid, double-faced partitions, and can also be used as the interior finish of outside walls.

To make sure your interiors will provide for *change*, write for booklet, "J-M Transite Movable Walls."

## 2. ACOUSTICAL CEILINGS—*Quieter!*

There's a Johns-Manville acoustical material to give you the best in sound control, no matter what the type of interior.

To assure you the maximum in noise-quieting, Johns-Manville not only provides the correct acoustical materials for each specific condition, but follows through by *installing* the materials *properly* with its own construction crews. In other words, you get "J-M materials installed by Johns-Manville" for best results.

That's the all-inclusive service . . . the *undivided responsibility* Johns-Manville gives your projects.

For further details, send for brochure, "J-M Sound Control." Describes such J-M acoustical products as demountable Sanacoustic, Fibracoustic and Fibretone, Transite Acoustical Panels, and special materials for Broadcasting Studios.

## 3. ASPHALT TILE FLOORS—*Colorful!*

You spend no more to have *quality* floors like these—attractive and resilient . . . extra-long wearing . . . reinforced with indestructible asbestos!

That's the kind of flooring you get with Johns-Manville Asphalt Tile. It's easy on the eyes, easy on the feet, and easy on the budget, too.

Yes, you'll like *everything* about this modern flooring, including the unlimited range of color combinations—from striking patterns with strong contrasts to solid fields of marbleized colors.

J-M Asphalt Tile does not originate dust . . . stays fresh and unmarred with practically no maintenance. Individual units permit easy repairs.

For areas exposed to oil or grease, use J-M *Greaseproof* Asphalt Tile. Send for full-color brochure, "Ideas for Decorative Floors."

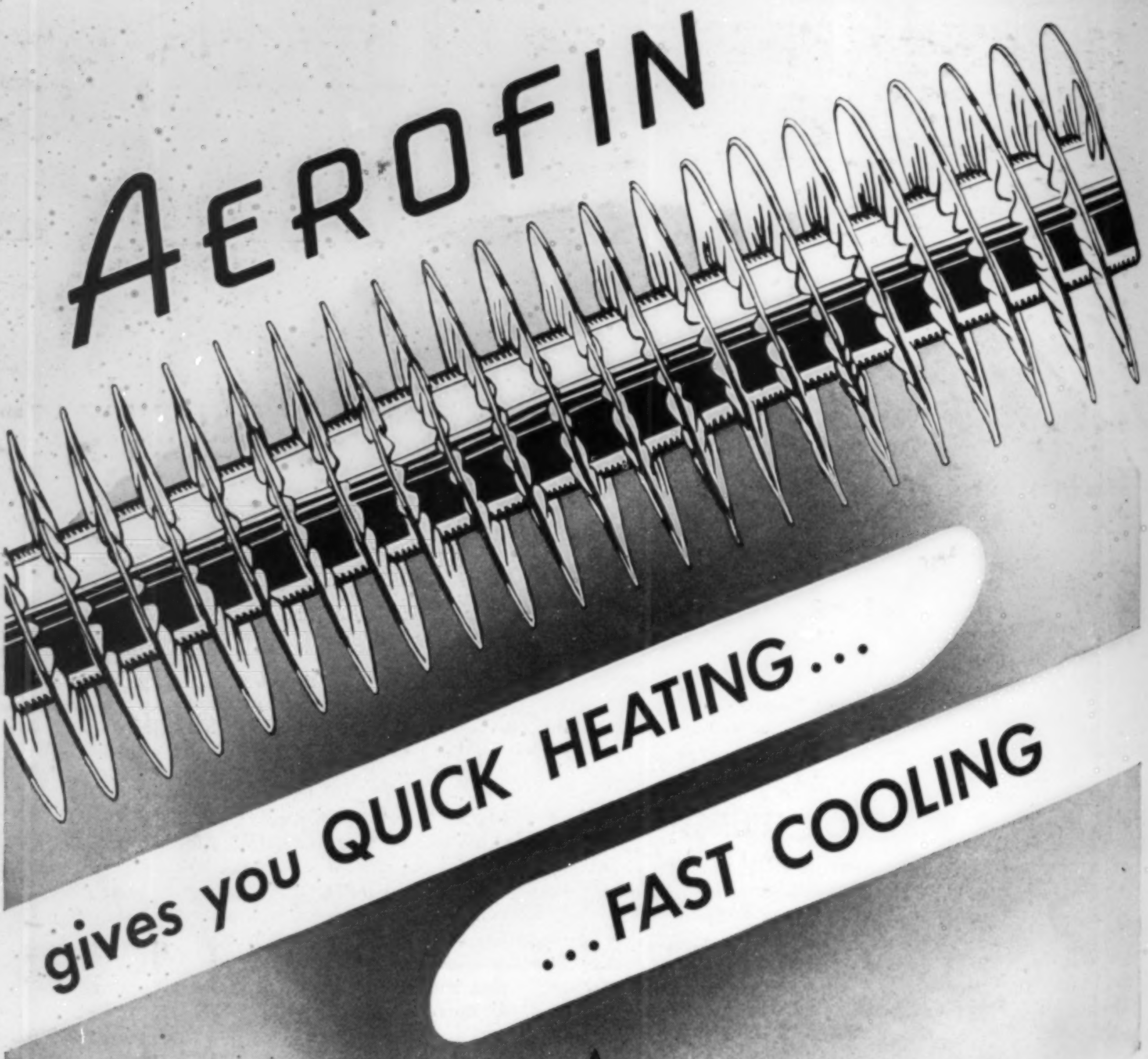
or Reception Lobbies and Stores

**Production of Johns-Manville Building Materials has now been greatly increased to meet unprecedented demands. So the chances are better than ever that you can get the materials you want when you want them. Write Johns-Manville, Box 290, New York 16, N. Y.**

JM

**Johns-Manville**

**Walls – Ceilings – Floors**



**Aerofin**
is sold only by manufacturers
of nationally advertised fan
system apparatus.
List on request.

AEROFIN construction—metallic bonding and complete tinning—assures highest practical heat transfer and protection from corrosion. Aerofin engineering—based on accurate published ratings—fits the right equipment to the job. A complete range of designs for every kind of heat- transfer application. Compact, easy to install. Experienced Aerofin field engineers are ready to help you with your heat-exchange problems.

## AEROFIN CORPORATION

434 S. Geddes Street, Syracuse 4, N. Y.

NEW YORK • CHICAGO • CLEVELAND • DETROIT • PHILADELPHIA • DALLAS • MONTREAL

CAROT'S STAINS

*Architect: David J. Abraham*

give *Natural Beauty* to any design in any site.....

The rich penetrating colors of Cabot's Creosote Shingle Stains bring out all the natural beauty of wood siding, shingles or clapboards. A selection of 21 attractive colors, clear brilliant hues to weathering grays and browns, enables you to pick exactly the right stain for any design in any setting.

**THE BEST WOOD PRESERVATIVE KNOWN**

Cabot's Creosote Stains are made with 60% to 90% of pure creosote oil, the best wood preservative known. This creosote oil penetrates deep into the wood, repels termites and insures years of protection from decay.

**COLORS THAT REMAIN TRUE**

Cabot's Creosote Shingle Stains actually dye the wood displaying grain and texture to its best advantage. And because pure pigments and no fillers or adulterants are used, the colors remain true, even after long exposure to the weather.

Cabot's Weathering Grays and Browns produce in a few months the mellow weatherbeaten effects so typical of old New England houses.

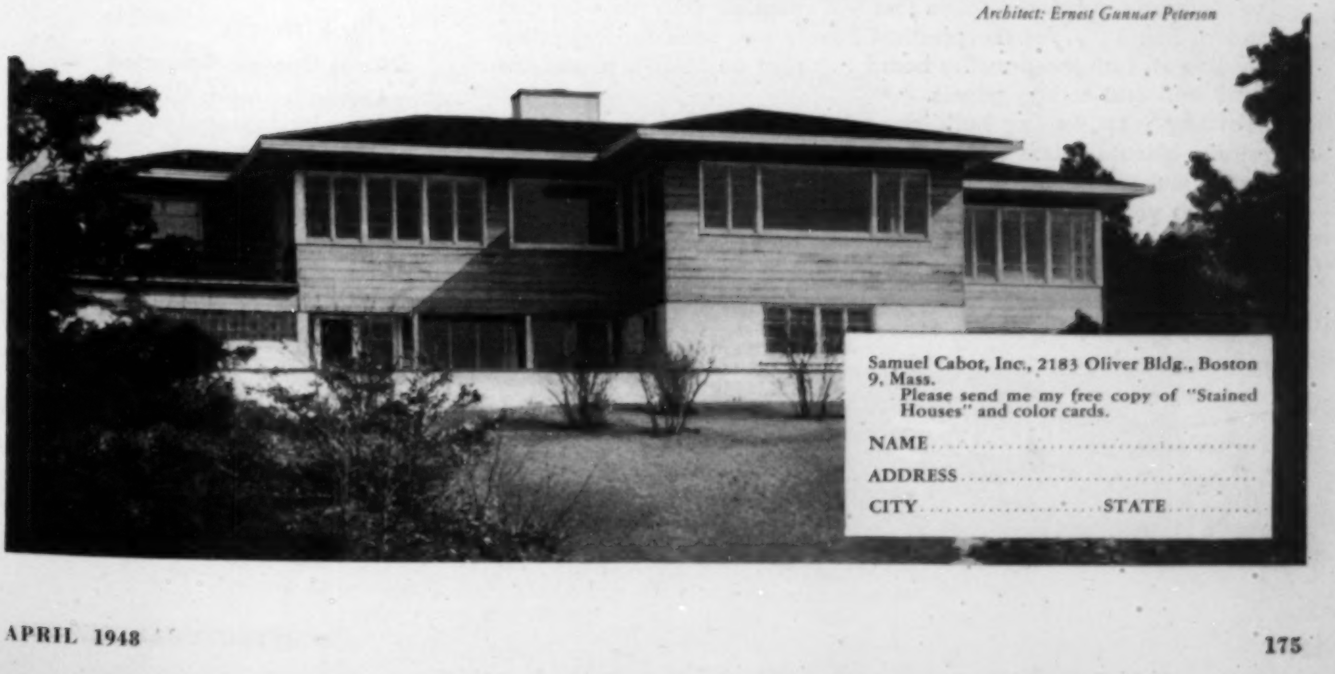
**ECONOMY**

Cabot's Creosote Stains cost one-third as much as good paint. They are quick and easy to apply . . . do not peel or blister, even on green lumber.

**FREE BOOKLET** "Stained Houses" contains complete information and illustrations. Write for your copy and color cards today. Samuel Cabot, Inc., 2183 Oliver Bldg., Boston 9, Mass.

**Cabot's CREOSOTE SHINGLE STAINS**

*Architect: Ernest Gunnar Peterson*



Samuel Cabot, Inc., 2183 Oliver Bldg., Boston 9, Mass.
Please send me my free copy of "Stained Houses" and color cards.

NAME ..........................................

ADDRESS ..........................................

CITY .......................... STATE ..........

(Continued from page 170)

formerly with the Gypsum Association, has succeeded Vilas E. Watts as managing director and executive secretary of the Institute. Institute offices are at 2540 Eastwood Ave., Evanston.

### ELECTIONS, APPOINTMENTS

The Buffalo-Western New York Chapter of the A.I.A. has elected Roswell E. Pfohl, president; S. Harold Fenno, vice president; Trevor W. Rogers, secretary-treasurer; and G. Morton Wolfe, New York State associate director. Mr. Wolfe has also been named to the executive committee for three years as has John Highland, Sr. Eugene Walter will serve on the committee for two years completing the unexpired term of Mr. Fenno.

Robert F. Blanks, Chief of Research and Geology for the Bureau of Reclamation, was elected president of the American Concrete Institute at the Institute's recent annual convention in Denver.

Gilmore D. Clarke, dean of the College of Architecture at Cornell University, has been appointed to an advisory board on reorganization of the public works functions of the executive branch of the government. Under the general direction of Herbert Hoover, the board is one of several authorized by Congress to study government reorganization. Other members include: James B. Conant, president of Harvard University; David Lilienthal, chairman of the Atomic Energy Commission; Charles Sells, superintendent of public works of New York State and Charles E. Wilson, president of the General Electric Company.

Charles S. Conrad, Jr., has been named chief architect of the Armstrong Cork Co., filling the vacancy created by the retirement of Henry Boettcher. Floyd Kline will move to the post of assistant chief architect formerly held by Mr. Conrad.

Peter W. Eller, vice-chairman of the Thompson-Starrett Co., has been elected president of the Building Trades Employers Association. Other officers elected to serve for 1948 are: H. M. Hughes, first vice-president; John F. Birch, second vice-president and Fred J. Driscoll, third vice-president. William J. Olvany remains as treasurer for the third year, Christian G. Norman as chairman of the board of governors for his 31st year, and William G. Wheeler as secretary for his 19th term.

Julian O. Heppes, executive vice-president of the Tile-Tex Co., Inc., has been elected president of the Asphalt Tile Institute. Elected to serve with him were: J. P. Stiger, Johns-Manville Corp., vice-president; and Winthrop Brown, Jr., Hood Rubber Co., secretary-treasurer.

Nathaniel A. Owings, architect, has been appointed to a four-year term as Chairman of the Chicago Plan Commission. Mr. Owings is the first architect and planner to hold this position.

### OFFICE NOTES

#### Offices Opened, Reopened

Conrad I. Arnold, A.I.A., has opened an office for the general practice of architecture at 15 Cayuga St., Seneca Falls, N. Y. Mr. Arnold also is affiliated with Antonin Raymond Associates, 101 Park Ave., New York City, as a consulting architect.

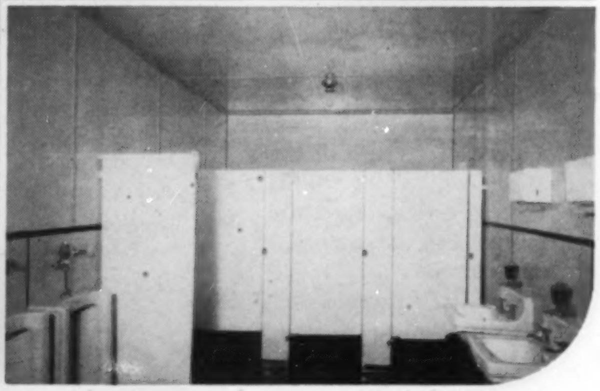
Benjamin Baldwin, Designer, has opened an office for the practice of interior architecture and furniture and product design at 33 E. 75th St., New York 21, N. Y.

John Gartman, Designer, has established the studio of Modern Home Furnishings Design at 299 W. 12th St., New York 14, N. Y.

John M. Hirsch, Architect, has opened

(Continued on page 178)

at home in any room



plan on Marlite walls

For the bright, efficient kitchen that will complete your plans for that modern house . . . for the practical beauty you need for that office building still on the drawing board . . . plan on Marlite plastic-finished wall and ceiling panels.

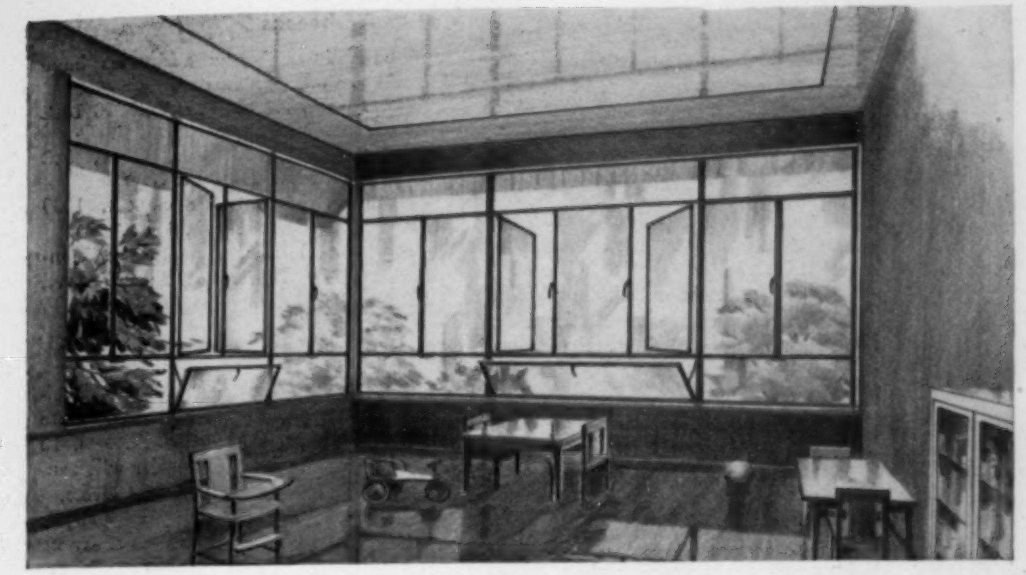
For any room, in any building – wherever practical beauty is required – Marlite colors and patterns provide the sparkling, colorful beauty and economical practicality that appeals to every client and simplifies your specification problems. See the new Marsh catalog in Sweet's File, Architectural, for complete details on Marlite wall-size panels, Marsh Mouldings, Marsh Bathroom Accessories and other Marsh products that help you do a better job. Marsh Wall Products, Inc., 405 Main Street, Dover, Ohio.

Marlite

PLASTIC-FINISHED WALL PANELS

for Creating Beautiful Interiors

Marlite, Marsh Mouldings, Marlite Polish, Marsh Bathroom Accessories, Marsh C-100 Caulking, Marsh C-200 and C-300 Adhesive, Marsh C-400 Household Adhesive



Fencraft Combination Windows, Types 636 and 616, joined with steel mullions to provide abundant daylighting—ideal for a hospital nursery. Sill vent tilts in—guards against drafts, prevents children falling out.

# How to get Larger Window Areas

## *with maximum economies*

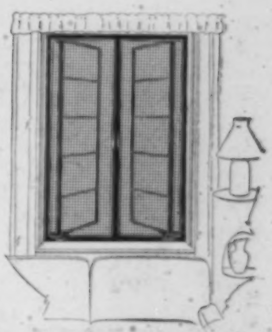
The trend to larger window areas for better daylighting and better ventilation makes window cost more and more a point for consideration.

To get larger areas with maximum savings, give a thought to the use of standard window units, combined to make attractive, efficient sources for daylight, ventilation—as well as view.

Fenestra Fencraft Windows are ideal for this purpose. They're famous Fenestra quality in every respect—suitable for the finest buildings. Yet standardization of types and sizes has resulted in manufacturing economies that mean lower first cost. Standardization results in construction economies, as well—for it permits co-ordination of window dimensions with those of commonly-used wall materials.

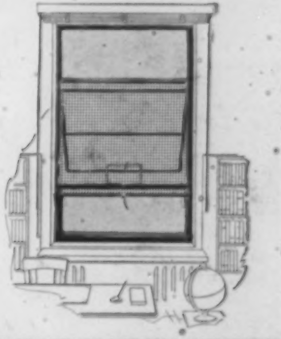
There's a wide range to choose from—many sizes and ventilator arrangements—in three popular types, Combination, Projected and Casement. Being steel, they can't warp, shrink or rot. Made by America's oldest and largest manufacturer of steel windows. You can count on them for quality construction that means better appearance, permanently easy operation and lower maintenance costs.

For information on types and sizes available, see Sweet's Architectural File for 1948 (Section 16a-14). Or mail the coupon.



**FENCRAFT CASEMENT WINDOW**

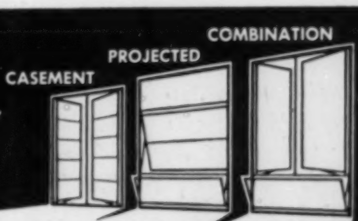
Safe washing—from inside. Easy to operate. Uniform screens, protected from outside dirt. "Homey" appearance makes them ideal for clubs, large homes, dormitories and nurses' homes.



**FENCRAFT PROJECTED WINDOW**

Open-out vent acts as weather-protecting canopy over opening. Open-in vent deflects air upward, sheds water outside. Widely used for schools. Horizontal lines are especially suited to low, wide buildings.

*Fenestra*



FENCRAFT INTERMEDIATE STEEL WINDOWS

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Please send me data on types and sizes of the new Fencraft family of Fenestra Windows:

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an architectural studio at 415 Vannest Ave., Trenton, N. J.

Arthur S. Katz, Architect, has opened an office at 1001 Broad St., Newark, N. J.

William H. Kremer, A.I.A., has opened an office for the general practice of architecture at 750 S. High St., Columbus 6, Ohio.

Jack M. Levy, Consulting Engineer, has opened an office for the design of air conditioning and other mechanical equipment of buildings at 151 Lexington Ave., New York 16, N. Y.

Elmer J. Manson, A.I.A., has opened an office at 410 W. Saginaw, Lansing 15, Mich.

William C. Martucci, Architect, has opened new offices at 1001 Broad St., Newark, N. J.

Anthony Thormin and Arthur Wolfe, Architects, have reopened their offices at 672 S. Lafayette Park Place, Los Angeles 5, Calif.

Through the doors of Jamestown Metal Corporation have come hollow metal products for many of the country's finest buildings.

Main office and factory of Jamestown Metal Corp.

5 ACRES OF ONE-FLOOR FACTORY
designed for straight line, efficient production

*As specialists in the fabrication of bronze, aluminum, steel and stainless steel, we offer our services wherever hollow metal doors, interior trim, elevator enclosures, office partitions, cold rolled mouldings and metal specialties are required.*

HOLLOW METAL
JAMESTOWN METAL CORPORATION
104 Blackstone Avenue Jamestown, N. Y.

### New Addresses

The following new addresses have been announced:

F. Wallace Dixon, A.I.A., 1200 18th St., N. W., Washington 6, D. C.

Lathrop Douglass, Architect, 518 Fifth Ave., New York 18, N. Y.

Edmund Krimmel, Architect, 1700 Sansom St., Philadelphia 3, Pa.

Swem & Golden, Food Service Consultants, 901 Northeast Second Ave., Miami, Florida.

### Firm Changes

Karl E. Blomberg, Architect, associated for the past 20 years with the late firm of Slee & Bryson, Architects, 16 Court St., Brooklyn, N. Y., will continue to practice at the same address.

William H. Daseking, Architect, is now associated with Arthur D. Janssen, A.I.A., 58 Austin Ave., Atherton, Calif.

Arthur A. Graves, Architect, and David W. Dykeman, Jr., Designer, have formed a partnership for the general practice of architecture and interior design under the firm name of Graves & Dykeman, 518–519 Commerce Bldg., Everett, Wash.

Uel C. Ramey, Harold W. Himes and Robert E. Buchner have formed a partnership for the practice of architecture under the name of Ramey, Hines & Buchner with offices at 519 S. Broadway, Suite 5, Wichita, Kans.

Ben L. Rose, designer and builder of stores and interiors, is now doing business under the name of Ben L. Rose Associates at 1674 Broadway, New York.

T. Raymond Turner and Allen M. Northington have formed a partnership for the practice of architecture under the firm named of Turner and Northington, Architects, with offices at 317 Medical Arts Bldg., Florence, Ala.

A. Stewart Walker and Alfred Easton Poor, Architects, have announced formation of a partnership to be known as Walker & Poor, Architects, replacing the consolidated firms of Walker & Gillette and Alfred Easton Poor. Offices have been moved to 542 Fifth Ave., New York 19, N. Y.

### *ADDENDUM*

Our apologies for the inadvertent omission of the names of the architects responsible for the design of Stuyvesant Town and Peter Cooper Village, Metropolitan Life Insurance Company housing developments shown on page 112 of the February ARCHITECTURAL RECORD. The late R. H. Shreve, of Shreve, Lamb and Harmon, was Chairman of the Board and Chief Architect of both developments until illness forced his retirement. Gilmore D. Clark then became Chairman of the Board and Irwin Clavan, who had worked with Mr. Shreve on the projects, succeeded him as Chief Architect.

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REINFORCED CONCRETE frames and floors effect substantial economies in construction—even in buildings of six stories or less. This method of construction simplifies the work of the masons, reduces the time required for handling forms and generally expedites completion of the job.

Reinforced concrete construction results in firesafe buildings with the strength and rigidity to resist all static and dynamic loads. Concrete frames and floors are ideally adapted to apartment buildings, hospitals, hotels and schools, for this type of construction permits the reduction of the total height of the structure without reducing ceiling heights, gives the architect unusual freedom in locating columns and cuts building cost.

Architects and engineers are invited to make full use of our services to secure all the advantages of reinforced concrete construction. Write today for copies of two free reference manuals: "Continuity in Concrete Building Frames" and "Handbook of Frame Constants." Distributed only in the United States and Canada.

**Photo shows section of the New York City Housing Authority's Brownsville housing project. Reinforced concrete frame and floors with wide shallow beams were used in the 27 six-story apartment buildings with three-story wings. Project includes 1,338 units to house over 5,000 residents. Frederick G. Frost, architect. Fred N. Severud, engineer.**

PORTLAND CEMENT ASSOCIATION

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A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

# REQUIRED READING

## CITY VILLAGE

*East of Fifth: The Story of an Apartment House. By Alan Dunn. New York 20 (1230 Sixth Ave.), Simon and Schuster, Inc., 1948. 6½ by 8½ in. 170 pp. illus. $2.75.*

Who but Alan Dunn would have thought of dramatizing a day in the life of a typical New York City apartment house? Just an average day, too — 24 hours of the normal happenings in a 52-apartment building on a mid-Manhattan street just east of Fifth Avenue! But Mr. Dunn's sly sense of humor and cartoonist's whimsical perception, both long familiar to readers of the ARCHITECTURAL RECORD and *The New Yorker*, have proved that such normal happenings are anything but dull.

This is not a book of cartoons, contrary to expectations, as were Mr. Dunn's earlier volumes. It is a text piece, illustrated with drawings — many drawings, happily — by the author. Much of the fun and interest are lost if the reader skims the pages; the book is one continuous whole, should be read from cover to cover.

The story starts at two o'clock in the afternoon of a late Indian-summer day. Tenants with terraces are watering their gardens (the water dripping over the parapet and sprinkling the doorman many floors below); bridge games are breaking up in favor of Scotch Mists for the social-registerite Edwardses and beer for the Jukeses of unknown origin. A new couple moves into 6B (a swap deal with the former tenants who wanted to live in Westchester), is branded by the doorman as "only worth ten thousand a year," and is visited almost immediately by Peggy Poole, the house pipeline. The renting agent briefs the superintendent on 7A's men visitors, 3A's unwashed windows, 5D's reported roomers. The exterminator reassures a worried tenant: "You can trust us, ma'am — On my floor report I'll say 'beetles.' "

Alan Dunn has lived in New York all his life, presumably in an apartment house not unlike this one. He knows his tenants. Nothing escapes him: the men coming home from their offices, the higher income brackets slackening or quickening their pace to avoid their lower level brethren; the night elevator man deserting his car for a bottle of beer with Peggy-the-pipeline; the doorman identifying his tenants' mail as he sorts it. The ex-Westchesterites newly moved into 6B can't sleep — they miss their crickets. An advertising copywriter is requested to stop typing at midnight, presently in his turn calls out to "*Please* turn down that sleep record!" And eventually the sun rises on another day.

In between all these commonplace events of course, the maids, the building employees, the tenants themselves discuss, explain, elucidate. A bride packs her trousseau. Love-lorn Miss Grayson gives her Tony one last chance, then quietly takes poison. ("I have to hand it to her for using poison," the superintendent comments. "You take gas, for instance — icebox switch sets it off and maybe 50 people get hurt — and jumping's messy.")

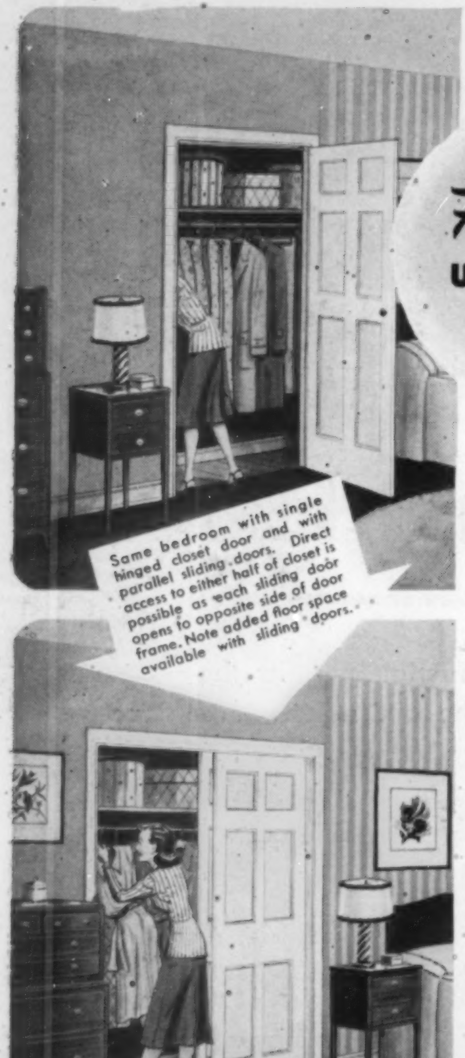
No secrets are left in Number 43 once Mr. Dunn has toured the building with pen and pencil in hand, but apartment living in the metropolis has taken on a new and interesting humanity.

## WHAT KIND OF CHURCH?

*Protestant Church Building: A Guide to Help Churchmen Plan Intelligently Church Building Programs. By William H. Leach. New York, N. Y. (150 Fifth Ave.), Abingdon-Cokesbury Press, 1948. 6 by 9 in. 188 pp. illus. $3.00.*

Any architect engaged in or interested in church planning will find this a worth while volume to consult despite the fact

(*Continued on page 182*)



Same bedroom with single hinged closet door and with parallel sliding doors. Direct access to either half of closet is possible as each sliding door opens to opposite side of door frame. Note added floor space available with sliding doors.

*For more "Living" room*

**USE VANISHING DOORS**

Whether the job calls for tiny kitchenette apartments or a palatial mansion, there's no getting around one fact—hinged doors waste space! That is why more and more residential building plans specify vanishing doors for closets, wardrobes, connecting rooms, etc.

With vanishing doors, sliding from side to side, there's no interference with the location of furniture, lighting fixtures, pictures, rugs—nothing in the room gets "behind the door." Used for closets and wardrobes, they permit direct access to entire contents without fuss or bother.

**SPECIFY R-W VANISHING DOOR HANGERS AND WOOD-LINED TRACK**

For smooth, silent, trouble-free operation, specify vanishing doors installed with Richards-Wilcox No. 719 Vanishing Door Hanger and Wood-Lined Steel Track. No oiling required . . . hanger wheel has Olite self-lubricating bearing, rolls on self-centering woodtrack lining without metal-to-metal contact.

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**For complete details—or free consultation without obligation—call or write the nearest Richards-Wilcox office.**

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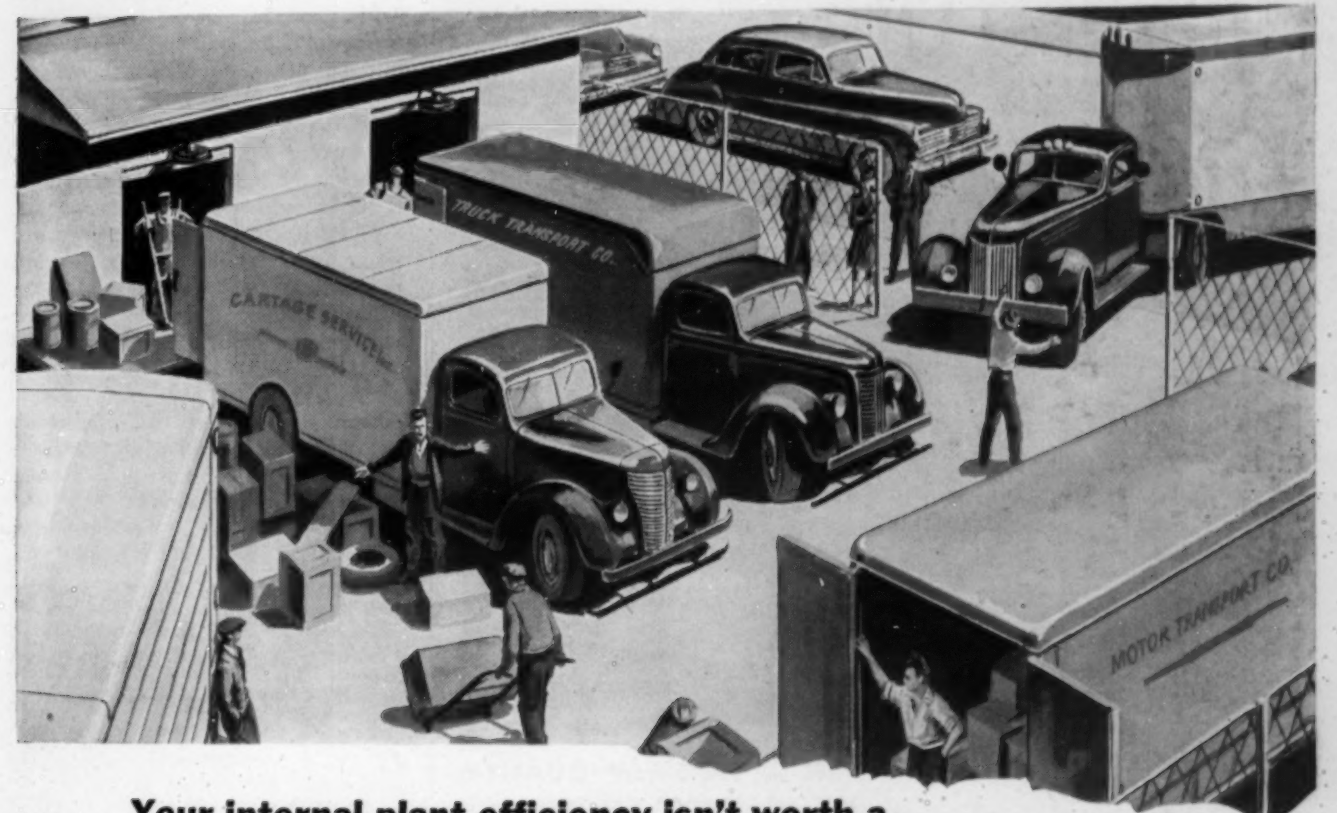
## take a look at
# YOUR BACK DOOR

### not your front door . . . if you think you're sitting pretty


TRUCK TRANSPORT CO.
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## Your internal plant efficiency isn't worth a plugged nickel if your shipping platforms are jammed

No matter how modern and efficient your plant looks on the *outside*—you only have to look at your loading platforms to get the *inside* story.

No matter how much money you pour into new machinery, new designs, new methods . . . if you neglect the basic "tool" of plant production, *SHIPPING AND RECEIVING FACILITIES,* you may as well pour your money down the drain.

*Don't* expect the impossible from your traffic manager. *Do* expect mounting shipping costs—if he is not provided with adequate loading platform space. You'll get the most out of trucks with adequate loading platforms; room to move around.

Right now, make a study of your "bottleneck" areas. Minor remodeling can often take care of normal plant expansion for years to come. Check your traffic manager, consult your architect. They will save you time *and* money!

**THE AMERICAN TRUCKING INDUSTRY**
AMERICAN TRUCKING ASSOCIATIONS, WASHINGTON 6, D. C.

**GOODS CAN'T MOVE FASTER THAN THEY'RE LOADED!**

## REQUIRED READING

(Continued from page 180)

(or possibly because of it) that it is written specifically for the layman. Mr. Leach is not an architect, but an ordained minister and editor of *Church Management*. As such he is well acquainted with the inner workings of church building committees and with the problems which such committees have to solve. This book therefore has a double value to the church architect: first, it gives him the layman's point of view; and second, it arms him with a fine volume to recommend to the building committees with which he is dealing. The book is well illustrated.

### TO BUY OR NOT TO BUY

*Home-Seekers' Handbook. By Gerald Lynton Kaufman, A.I.A. New York 18 (67 W. 44th St.), George W. Stewart, Publisher, Inc., 1947. 6 by 8 in. 160 pp. $2.50.*

Incredible as it seems, here is still another volume to help the would-be home owner get just the house he wants. All we need now is a "Handbook for the Selection of a Handbook on How to Build or Buy a House."

Two things make this particular volume of interest despite its many predecessors: (1) it is written by an architect, and contains more than the usual amount of technical and structural information; (2) in addition to the inevitable questionnaires and check lists it contains an amusing and perhaps valuable "housing preference test" which presumably will tell the reader with just what type of housing he would be most content. How accurate this test may be, however, this reviewer cannot say: we took the test, discovered to our perplexity that we should avoid at all cost renting an apartment or house — something we have been doing all our life.

Mr. Kaufman covers all the traditional topics from budgets and mortgages to interior decoration and landscaping. Almost half the book is given over to "building your own," and here, as would be expected, Mr. Kaufman is at his best. His chapter on materials, for example, is divided into materials for foundation, for exterior walls (both masonry and frame construction), roofing, flooring, and interior walls and partitions. A second chapter is equally detailed on mechanical equipment. Also included are a fine discussion of the architect's services, and a complete explanation of construction contracts. All in all this is one of the most helpful of all volumes to date written to help the would-be home owner get off to a good start.

### UNIVERSITY PLANNING

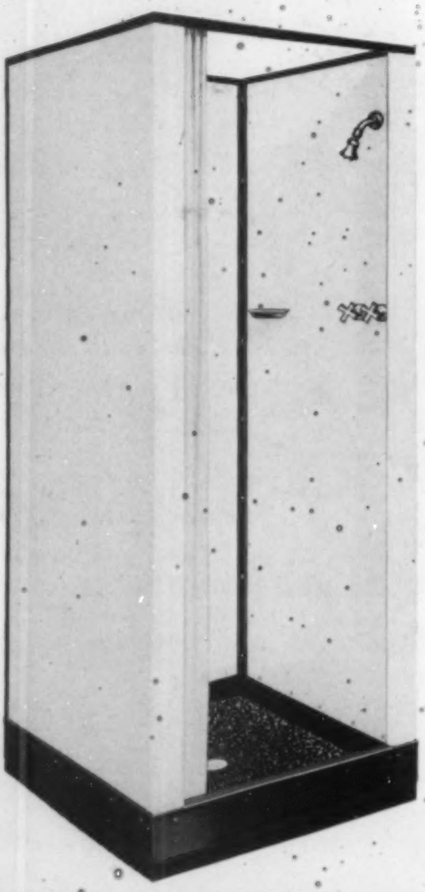
*Building Problems of Urban Universities: A Report of a Conference Held in Cleveland, Ohio, May 19–20, 1947. Edited by Herbert C. Hunsaker. Washington 6, D. C. (744 Jackson Pl.), American Council on Education, 1948. 6 by 9 in. 88 pp. $1.00.*

Reports on conferences very seldom achieve the liveliness and interest of the conferences themselves. People just do not talk for publication as a rule. But Dean Hunsaker's skillful editing of this report has maintained much of the original flavor of the two-day session in Cleveland. It makes interesting reading.

Most of the men taking part in the panel discussions were either educators or architects. The give and take of their conversation on "Planning the University Plant in Relation to the City" and "Design and Facilities of a Modern University Plant," for example, thus probably sum up the best thinking of the day on those problems. Here in one handy volume the university deans report on what they want, what they need, what they are planning, and the architects tell them what they could have if they wanted it and could afford it. Even costs are discussed quite frankly. No architect doing university work can afford to miss this report.

BUDGETEER MEANS BIG VALUE

Vitreous porcelain enamel receptor with textured green-on-black Foot-Grip, No-Slip floor . . . walls of 16 B & S gauge aluminum alloy with high-temperature baked white enamel inside and outside . . . these are basic value features of Weisway Budgeteer 32BA.



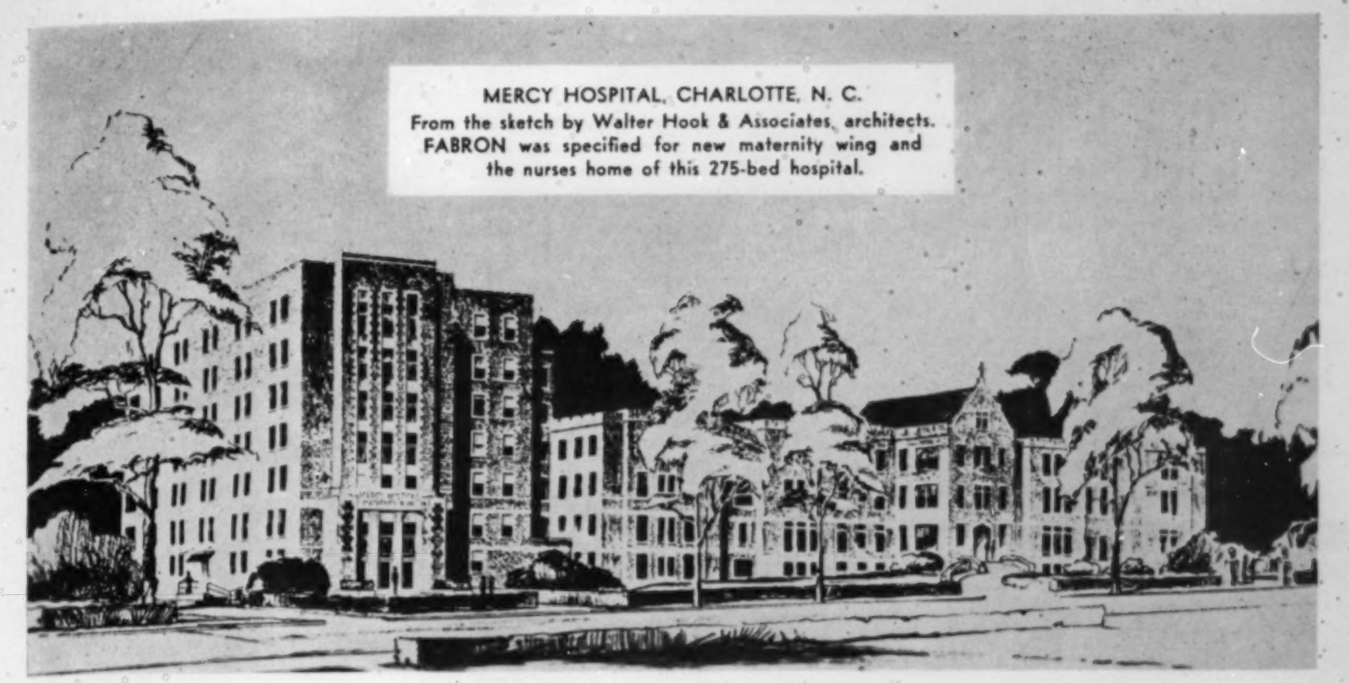
Budgeteer, one model in the Weisway quality line

IN A WEISWAY QUALITY CABINET SHOWER

Service-tested materials, precision manufacture and the quality standards which have built our reputation as a pioneer in the Cabinet Shower field enable you to specify the Budgeteer with complete assurance.

The Weisway Budgeteer is suitable for a wide variety of installations at a substantial saving in cost which in no way affects the utility value. Write for complete information. Henry Weis Manufacturing Co., Inc., 403 Oak Street, Elkhart, Indiana.

Weisway CABINET SHOWERS



MERCY HOSPITAL, CHARLOTTE, N. C.
From the sketch by Walter Hook & Associates, architects.
FABRON was specified for new maternity wing and the nurses home of this 275-bed hospital.

## WHY *fabron* HAS NO "ALTERNATE"

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## AS AN INTERIOR FINISH FOR HOSPITALS

To the architect familiar with FABRON's proven superiority to standard interior finishes, there's no such thing as a FABRON "alternate". He knows from experience that no common ground exists on which FABRON and conventional finishes can be compared. Here's why:

**Decoration.** FABRON patterns and colors are designed especially for hospital use—are carefully styled for their therapeutic values. Sunfast, too—and washable.

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**Plaster protection.** FABRON's sturdy fabric and plastic base strengthens plaster, prevents cracks—eliminates the need for leaving new buildings undecorated in anticipation of plaster cracks.

In short, FABRON provides every service that conventional finishes perform—but offers plus features that cannot be found combined in any other type of standard interior finish. An "alternate" to FABRON? **There is none!**

**Initial cost** of FABRON falls within the average budget. Before you specify the interior finish for your new hospital project, write us for basic cost figures on FABRON for comparison with other types of interior finishes. This will help lighten your tasks by eliminating the need of asking for preliminary contractors' bids. We will also gladly prepare a complete decorative scheme—with samples—based on your blueprints. No cost or obligation, of course.

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SEE OUR CATALOG IN SWEET'S

(*Continued from page 154*)

### CONCRETE PROGRESS

To celebrate the 20th anniversary of the introduction of *Incor*, a high early strength portland cement, the Lone Star Cement Corp. has issued an interesting 44-page illustrated booklet called "20 Years — a New Era in Concrete." The booklet shows how the material has stood up in various types of usage ranging from street pavement to seaplane hangars.

"High early strength portland cement," the company comments, "has made it possible to introduce in construction those principles of line-production which characterize the American way in industry generally. . . . The only basic difference between high early and regular portland cement is that the former, through refinements in the process of manufacture, cures or hardens thoroughly in 24 hours, where it formerly took a week or longer. While no change in concreting methods has been required, increased rate of strength gained has made possible far-reaching changes in building techniques by making concrete in effect a ready-to-use, year-around construction material."

Convect-O-Base

Baseboard heating unit uses little water

### HEATING

#### Baseboard Radiation

A new form of baseboard radiation called *Convect-O-Base* is a combination of aluminum fins which are detachable, mounted on 1-in. pipe, and copper tubing on which are permanently mounted aluminum fins. The system uses a very small volume of water to assure a more constant temperature without long warm-ups, and according to the manufacturer maintains a 3° average floor-ceiling differential.

Piping can be run through walls from room to room, and no valves are required. The unit comes with two covers: an inner liner that is nailed or screwed to the wall in place of the conventional baseboard, and a front grille that hooks over the top edge of the liner and fits over the pipe and fins. Both covers are made in 6-ft. lengths, can be cut to size on the job. Finish is natural aluminum, can be painted to conform to any decorative note. Minimite Co., 623 S. Kildare Ave., Chicago 24, Ill.

#### Baseboard Convectors

The *U. S. Fin-Ray Baseboard Convector*, shown at the February Heating and Ventilating Exposition in New York, is a fin-type steel radiator enclosed with a grilled steel covering plate. Installed near the bottom of the wall in place of the usual wooden baseboard, the Fin-Ray can be used in either new or remodeled homes or commercial buildings, can be painted or finished to match any decorative scheme. U. S. Radiator Corp., Detroit, Mich.

#### Smokeless Stove

Developed primarily to meet the requirements of anti-smoke ordinances such as St. Louis and other cities have adopted, the *Worsham Minute Smokeless Furnaces and Stoves* are semi-automatic, requiring only three simple tending operations. One lever dumps the ashes into an ash container. Another transfers the remaining incandescent coke. Coal is then poured into the unit

(*Continued on page 186*)

**NORTHWESTERN UNIVERSITY APARTMENTS**
**Evanston, Illinois**
**Holabird & Root Architects**
**R. C. Wieboldt Co. Contractors**

*98 apartments in this notable post-war project are equipped with*

MURPHY CABRANETTE KITCHENS

PORCELAIN ON STEEL

In single, compact units Murphy Cabranette Kitchens provide complete kitchen facilities in minimum space. 1948 models (four sizes) are characterized by clean, sweeping lines and such features as refrigerators with push-button doors and stainless steel frozen food compartments . . . gas or electric ranges of advanced design . . . one-piece sink and range tops. Best of all is the appealing, permanent beauty of genuine vitreous porcelain on all exposed surfaces, a feature exclusive to Murphy Cabranette Kitchens.

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**DWYER PRODUCTS CORPORATION**
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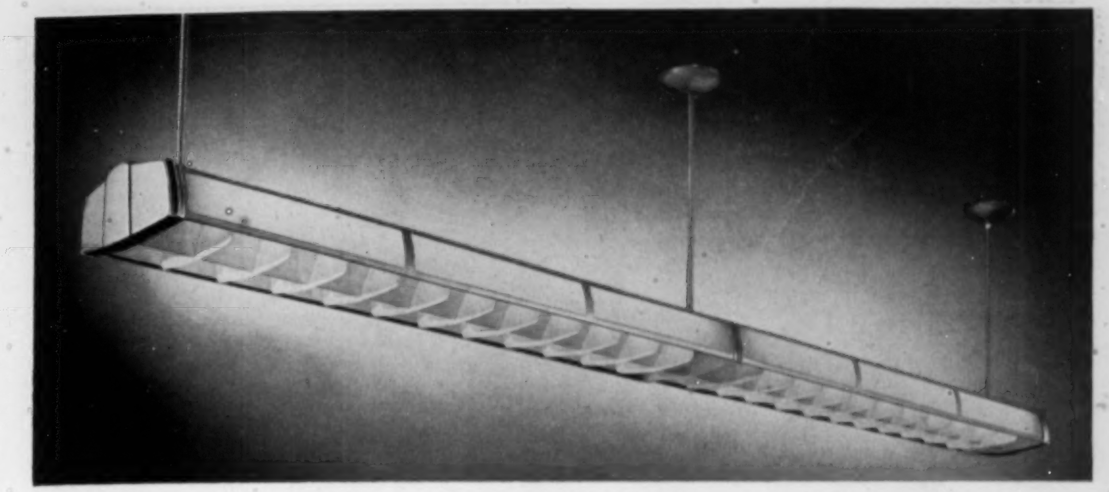
# This is the Wakefield GRENADIER II



## . . . with features permitting CONTROL and DIRECTION of light

**The Grenadier II** is available in three models: On-Ceiling, Canopy and Stem Suspension, and on the latter two the distribution of light may be regulated by specifying that your Grenadiers be furnished:

1. Without top plate reflectors, thus securing 50% of light on the ceiling; or
2. With slotted top plate reflectors which distribute about 92% of light downward and 8% up; or
3. With solid top plate reflectors which distribute 100% of light downward.

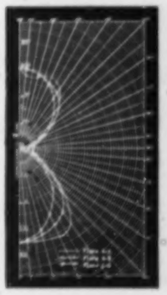
**The Grenadier II** is a louvered unit with translucent white plastic side panels which become luminous when the lamps are turned on. All metal parts are beautifully finished in a soft metallic satin. A well designed louver, which secures efficient diffusion and masks the surface brightness of the lamps, provides 35° shielding normal to the lamp and 25° parallel. Each 4' section utilizes two 40W fluorescent lamps.

**The Grenadier II** is designed with all reflecting surfaces turned downward so that they collect a minimum of dust. Side panels, louvers and channel covers are easily removed for periodic washings. Each model is built for installing in continuous runs and standard connecting parts are available from jobbers' stocks or the factory. The single unit for small rooms and corridors has twin suspension.

Excellent for stores is the Grenadier II equipped with a spotlight using a 150W Sealed Beam lamp and adjustable 35° in any direction. Details in the new Wakefield catalog.

**Lighting Design Data.** This table shows the number of square feet allowable per luminaire (for the model illustrated; catalog No. GRL-24824) for varying interior conditions and requirements. Divide the square foot area by the proper figure to find the number of luminaires required. Figures are based on present data book ratings for 4500° white lamps.

| Average Fcs. in Service | Large Room Width 4 Times Height | | Medium Room Width 2 Times Height | | Small Room Width Equals Height* | |
|---|---|---|---|---|---|---|
| | Light Finish | Medium Finish | Light Finish | Medium Finish | Light Finish | Medium Finish |
| 30 | 56 | 45 | 47 | 38 | 37 | 29 |
| 40 | 42 | 34 | 35 | 29 | 28 | 22 |
| 50 | 34 | 27 | 28 | 23 | 22 | 18 |
| 60 | 28 | 23 | 24 | 19 | 19 | 15 |



The flux or light of any lighting unit is plotted as a curve as a result of an impartial test made by Electrical Testing Laboratories. Shown here is the distribution curve resulting from such a test of the Grenadier unit illustrated above (Catalog No. GRL-24824). For further data, consult Sweet's File or write for catalog to

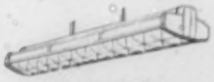
**The F. W. Wakefield Brass Company**
**Vermilion, Ohio**

## Wakefield Over-ALL Lighting

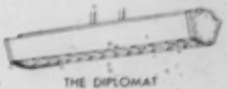
**FOR OFFICE • DRAFTING ROOM • STORE AND SCHOOL**

DES. PAT. 148, 191

THE STAR


THE GRENADIER IV

THE COMMODORE


THE DIPLOMAT

(Continued from page 184)

— a full day's or night's supply — and nothing further need be done. When the ash receiver is full, it is covered and carried out like a suitcase.

These new units burn oil-treated dustless coal of any kind up to the size of a fist. What it does is transform the coal into gas and burn it as it comes from the coal. The remaining coke, say the manufacturers, continues to heat the house for several hours. Worsham Co., Inc., 7329 Lohmeyer Ave., St. Louis 17, Mo.

### Gas-Fired Unit Heater

A new line of gas-fired unit heaters is designed to embody all the latest features of forced air heating. The units, ranging in size from an input of 65,000 to 200,000 Btu's per hour, operate on either manufactured, natural or mixed gas.

Known as *Type 46 T*, the new line has a heat interchanger and combustion chamber assembly made of "aluminized" heavy gauge steel, electric welded to provide one-piece, leak-proof construction. Air for combustion purposes and for the draft diverter intake is drawn from the sides of the unit to prevent mixing with the heated air stream. Double action high temperature safety control and adjustable louvers are features of the unit. Casing is styled and finished in durable neutral gray enamel. Carrier Corp., Syracuse, N. Y.

### Line Expanded

Three new home heating units have been added to the Richmond line of plumbing and heating equipment. The new units are the *Type K Gas Boiler*, which has built-in domestic hot water coil; the *Horizontal Gas Winter Air Conditioner*, said to require a relatively small amount of floor space; and the *Oil Winter Air Conditioner*, designed for installation in low cost homes. Richmond Radiator Co., 19 E. 47th St., New York 17.

Mock window for home furnishings display

## SET-UP WINDOWS

Window panels of *Celanese Vimlite* are being used by B. Altman & Co., New York, in room set-ups for home furnishing displays. The Vimlite, a light-weight wire mesh coated with transparent Celanese cellulose acetate, can be cut into any form desired and is quickly installed with hammer and nails. It admits light while covering out-of-tune and unwanted details, is shatter-proof, can be cleaned with a damp cloth, and can be rolled up for storage. Celanese Corp. of America, 180 Madison Ave., New York 16, N. Y.

## WATER HEATERS

### Oil-Burning Unit

Engineered to employ the same principle of water heating efficiency used in steam generating power plants, the new *Perco-Flash Hot Water Heater* is said to give high speed flash heating in minimum time and space. Incorporating the "Ball Flame" oil burner, the unit is compact, with the hot water capacity of larger tanks. Fast water heating is achieved by circulating a small stream of water over a large heated area at high

(Continued on page 188)

All the way through—

There's no surface decoration to wear off with Amtico Rubber Tile. The rich marbleized patterns go all the way through, to give your clients years of faithful service.

Amtico
RUBBER TILE

No other flooring material has such flexibility and resiliency, no cracked or chipped tiles to be discarded when the job is finished. That same resilience means sound absorption. Jarring footsteps are hushed, as if by fine carpeting.

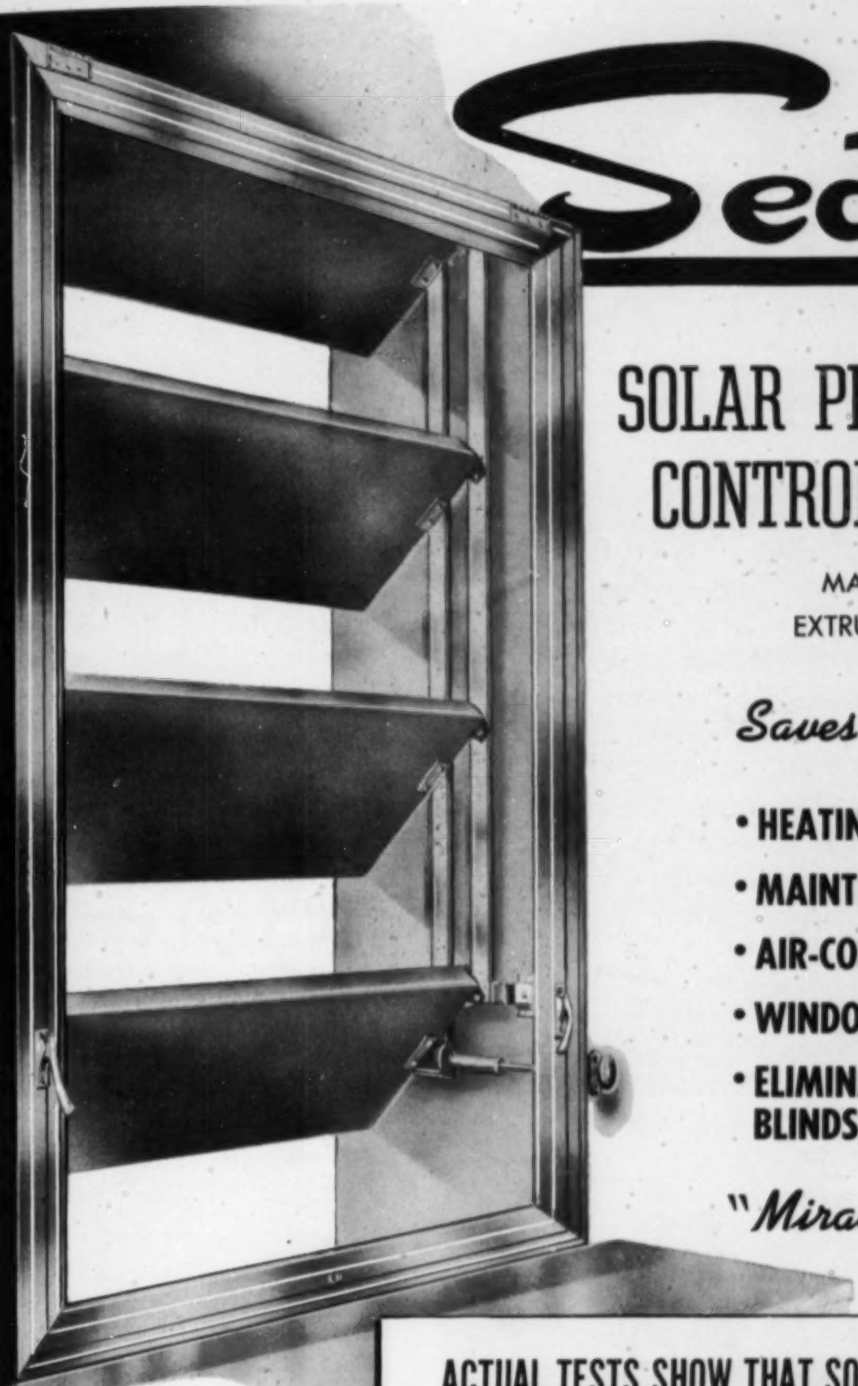
With the wide range of glowing colors available, you can plan floors outstanding in design.

Upkeep and maintenance are kept at a minimum. Mop it, and with an occasional waxing the gleaming beauty is a constant source of satisfaction.

Samples and descriptive literature are available — send for yours and be prepared to offer your clients this premium floor.

SMOLDERING CIGARETTES AND STAINS LEAVE NO PERMANENT BLEMISHES ON AMTICO RUBBER TILE

AMERICAN TILE & RUBBER CO.
TRENTON, NEW JERSEY



# Sealuxe

## SOLAR PROOF WINDOWS CONTROL RADIATION!

MADE OF HEAVY
EXTRUDED ALUMINUM

*Saves Money in...*

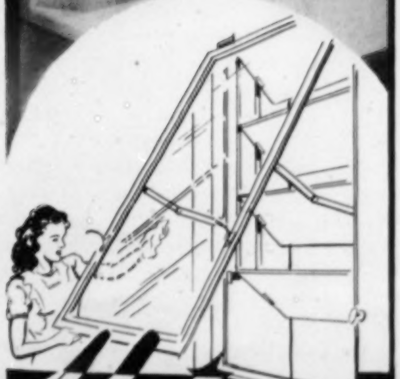
- **HEATING COSTS**
- **MAINTENANCE COSTS**
- **AIR-CONDITIONING COSTS**
- **WINDOW CLEANING COSTS**
- **ELIMINATING NEED FOR BLINDS, DRAPERIES, ETC.**

*"Miracles in Metals"*

**ACTUAL TESTS SHOW THAT SOLAR RADIATION ACCOUNTS FOR AS MUCH AS 75% OF THE TOTAL COOLING NECESSARY!**

The outside shade, an integral part of the Sealuxe SOLAR PROOF WINDOW, minimizes and yet utilizes the effect of solar heat radiation. This control of solar energy results in more effective and economical air conditioning cost. Shades are designed for easy and quick adjustment from the inside and provide for maximum control of light and visibility. Another feature is that the shutter affords protection against storms, hurricanes, hailstorms, etc., and gives absolute draft control.

*Qualified sales representatives in every architectural center*



**Universal**
CORPORATION
**6710 DENTON DRIVE ★ DALLAS, TEXAS**

(Continued from page 186)

speed. This is done by a tube-within-a-tube system somewhat like a percolator in operation. Kresno-Stamm Mfg. Co., 345 Commercial Ave., Palisades Park, N. J.

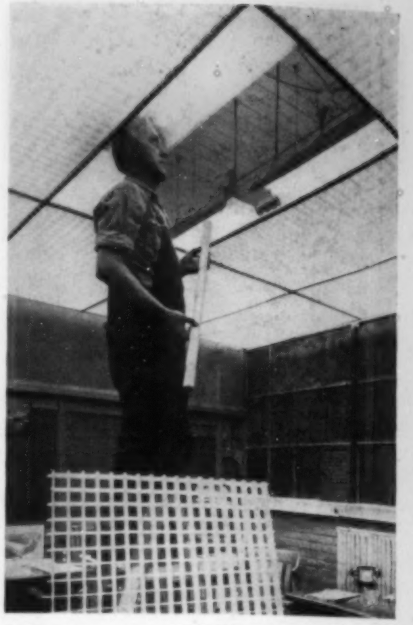
**Electric Unit**

A new automatic electric water heater, the *U. S. Capitol*, is available in sizes from 10 to 140 gal., and is designed to operate without noise and odor, free from the necessity of storing fuel. It can be installed in kitchen, utility room basement or recreation room. U. S. Radiator Corp., Detroit 31, Mich.

### LIGHTING

**Plastic Louvers**

The entire ceiling becomes a lighting unit with a new fluorescent lighting system called the *Sky-Glo*, the transparent Vinylite plastic louvers of which are said to reflect 18 per cent of the light striking its surface and to allow 71 per cent transmission. The system consists of standardized stock sections of the plastic louvers, channels and fittings. Benjamin Electric Mfg. Co., Des Plaines, Ill.



Ceiling-sized fluorescent lighting unit

**New Fixtures**

A completely new line of fluorescent and slimline *Executive Luminaire* lighting fixtures just announced has been designed for correct illumination and ease of maintenance. Available in two and four lamp units, with louvered or glass bottoms, for standard 40-watt fluorescent and 51-watt slimline sizes, the units are "wafer-thin" in depth, sturdily constructed, and finished in baked white enamel having a reflection factor of 87 per cent. All-bright Electric Products Co., 3917 N. Kedzie Ave., Chicago 18, Ill.

### PAINTS

**Heat-Resisting**

A new high-heat resisting aluminum paint called *Heatrem* is made specifically for use on exterior and interior metal surfaces where temperatures reach 1500° F., or any wood, brick or concrete surfaces exposed to extreme heat.

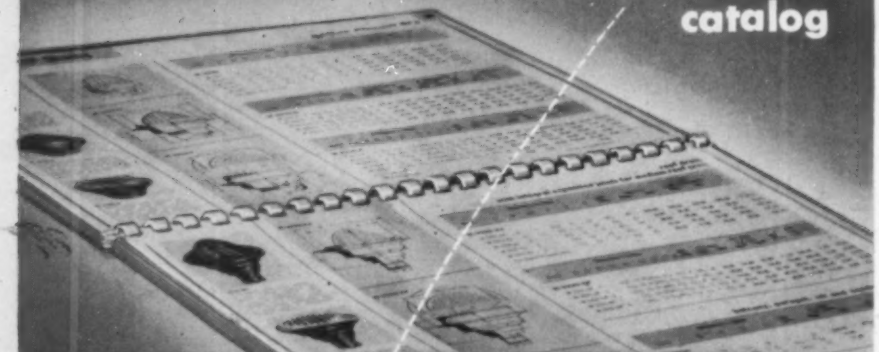
According to the manufacturer, Heatrem fuses with metal surfaces to form a permanently bright, elastic finish that resists moisture, corrosion, acids, alkalis and industrial fumes. It is said to set up in four hours and dry completely over night. Speco, Inc., 3142 Superior Ave., Cleveland 14, Ohio.

**Self-Sealing**

A self-sealing, oil-base, flat wall finish called *Dutch Standard Wall Charm* is suitable for painting over wall paper, wallboard, kalsomine, tile, brick, wood

(Continued on page 190)

Information PLUS!
send for this brand-new drainage products catalog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..."SHOKSTOP" sealed air chambers
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on floor, roof and shower drains..backwater valves ..grease interceptors... swimming pool fittings.. sealed air chambers... in the most helpful, easy-to-find format we could devise!

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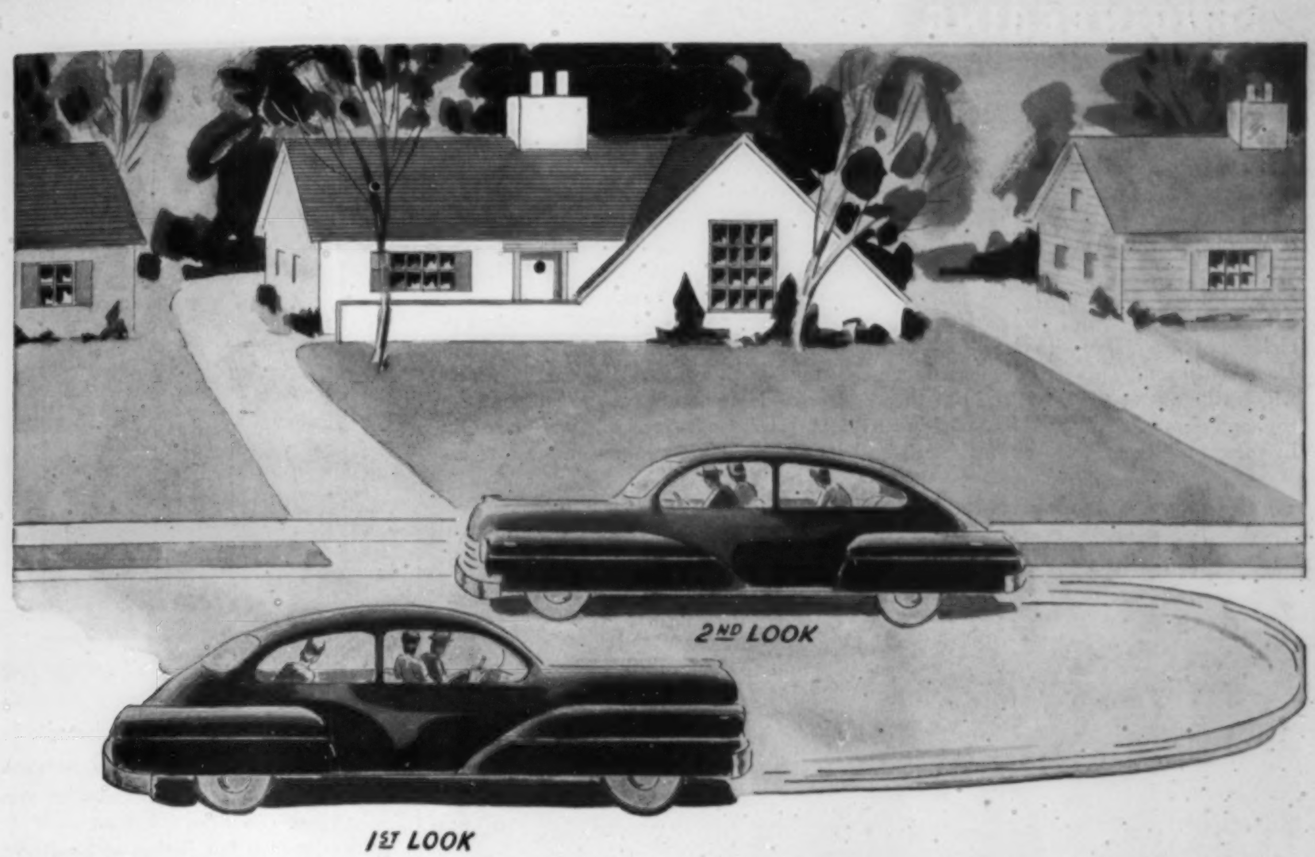


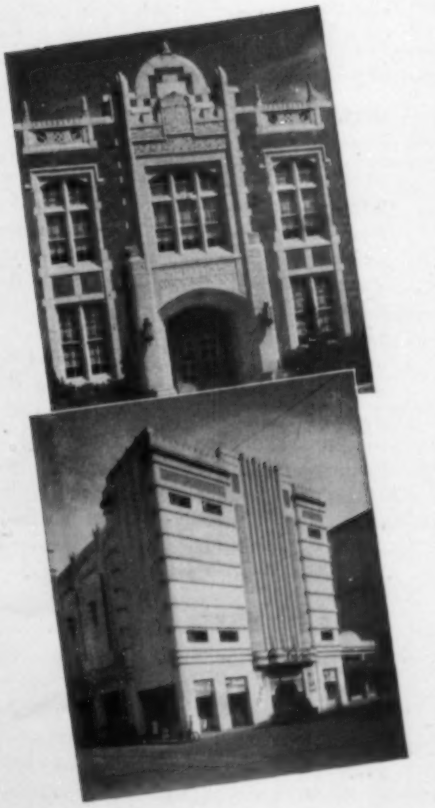
# Does your work get the "SECOND LOOK"?

Ever see people drive past a home or building and were so impressed by its beauty that they turned around and drove by again for a "second look?" Invariably, these "second looks" are fostered by outstanding architectural treatment worked out in distinctive materials. Of all exterior finishes, one material predominates for getting "second looks" —that material is Medusa White, the Original White Portland Cement.

For 41 years Medusa White has helped architects create "second look" work. Consider for a moment how Medusa White accomplishes this end. This cement and its twin, Medusa Waterproofed White Portland Cement, make America's finest stucco. Whether gleaming white or tinted with colored aggregate, Medusa Waterproofed Stucco retains its beauty for years. Water containing dirt is repelled at the surface, consequently the dirt washes off.

The most beautiful cast stone doorways, building trim and sculptured work—construction that always creates "second looks"—is cast with Medusa White. Outstanding industrial buildings of white or white and gray architectural concrete are made with this cement. Floors too, of sparkling, colorful Terrazzo, get their "second look" if that Terrazzo has as its matrix Medusa White.

The story of Medusa White for stucco is found in the book, "A Guide to Finer Stucco". Another booklet, "Medusa White Portland Cement", tells of its other uses. Architects who want their finished work to merit "second looks" should send the coupon below for these booklets. They're free, of course.



*"FIFTY-SIX YEARS OF CONCRETE PROGRESS"*

**MAIL THIS COUPON NOW!**

**MEDUSA PORTLAND CEMENT COMPANY**

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Gentlemen: Please send me copies of the free booklets, "A Guide to Finer Stucco", and "Medusa White Portland Cement",

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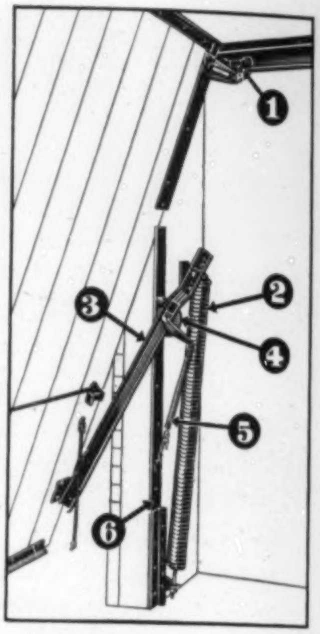
*Also made by Medusa Products Co. of Canada, Ltd., Paris, Ontario*

(*Continued from page 188*)

and rough plaster. Washable, and dirt and rust resistant, it is available in white and eight colors. Harrison Paint & Varnish Co., Canton, Ohio.

### GARAGE DOOR

Complete freedom of garage design is claimed to be possible with *Over-The-Top Door Equipment.* This is a one-piece door which tilts out at the bottom, in at the top, and rises to a full overhead position by means of "arms," a track in the ceiling to guide and carry the door and counter-balancing springs. Other features are: silent-running, roller-bearing hangers that can't derail; oversize springs that provide a surplus of lifting power; patented brake that stops the door at full open and closed positions to eliminate possibility of slamming; and patented "automatic opener" which starts the door upward the moment the lock is released. Available in 19 sizes, in complete wood or aluminum units requiring only a few inches of headroom above the door opening. Frantz Mfg. Co., Sterling, Ill.



*Features of "Over-the-Top" garage door are: (1) roller-bearing hangers; (2) oversize springs; (3) strong channel-iron arms; (4) patented brake; (5) patented automatic opener; (6) steel weather strip*

### CABINET CATCH

A new cabinet catch uses a solid brass special screw as strike to assure easy adjustability and to permit smooth operation without oiling. Floating fingers are propelled by individual lifetime springs. The catch is zinc-plated, is said to allow twice the normal shrinking and swelling of doors. Ideal Brass Works, 250 E. 5th St., St. Paul 1, Minn.

### HAULING AID

A recently announced piece of hauling equipment, the *Tournahauler,* is electrically powered for loaded capacities from 20 to 100 tons. The unit is mounted on large rubber tires and equipped with a new type differential, which causes the drive wheel having the greatest traction to pull several times harder than the other. Steering power is controlled by means of small micro-switches on the dash board. Crane or trolley, or both, may be installed to increase efficiency in loading and unloading. All-welded construction to reduce operating and maintenance costs. Available in various bed-lengths, some models diesel-powered. R. G. Tourneau, Inc., Longview, Texas.

### FACE FORMS

Articulated flexible steel face forms for curb and gutter construction consist of straight, rigid sections 1 ft. long. An assembly of sections, with a steel cable passing through eyelets welded to both

(*Continued on page 192*)

A Schlage Installation because...

Schlage is Distinctive

These directors didn't consider locks when they wanted their board room remodelled. But their Architect did. He chose Schlage to keynote the entrance with an impressive dignity.

*See Schlage in Sweets Architectural File*

SCHLAGE
LOCK COMPANY
SAN FRANCISCO NEW YORK

ORIGINATORS OF THE CYLINDRICAL LOCK

Locks by
SCHLAGE

# Long-term Low-cost Oil Heat

# A CERTAINTY WITH PETRO

Mr. V. H. Paulsen is a member of the firm of Ziegler, Childs & Paulsen, Jersey City, N. J., whose plans for a 1000-bed hospital, to be erected at the boundary of Newark, East Orange and South Orange, New Jersey, have recently been in the news. Constructed by the Army Corps of Engineers for the Veterans Administration, this hospital will consist of a group of nine buildings occupying a 35 acre site.

During the past 27 years Mr. Paulsen has specialized in institutional planning, including large hospital projects in New York, Connecticut and New Jersey. He is currently retained as hospital consultant on a nation-wide hospital program.

INDUSTRIAL MODELS: No. 5 or No. 6 fuel oil; manual, semi-automatic or automatic operation; 8 sizes to 450 bhp. Thermal Viscosity preheating.

DOMESTIC MODELS: No. 3 or lighter oils; "conversion" and combination-unit types, 7 sizes. Patented "Tubular Atomization."

FULL DATA on Petro Industrial Burners are in catalog files both of Sweet's and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

BECAUSE THE PERFORMANCE of a heating system affects building costs to an important degree, thrift-minded owners insist on selecting only that oil burner equipment which assures economical operation. Is the heating plant competent to serve satisfactorily under the load carried? Are running costs a minimum, both in fuel consumed and in attention required? Is the oil-burning system sturdily built so that it can be expected to give good service for many years?

Architects who speak from experience endorse Petro on all counts. Embodying a basic design that reflects more than forty years' specialization in oil heat, a Petro oil burner gives long-term low-cost service at peak efficiency. Built of interchangeable parts, it permits any desired development of the basic design to meet individual installation needs.

Mr. Paulsen puts it this way:

> *"We have included oil heating in many of our specifications, and these installations in our experience have produced flexibility and quick steaming, combined with cleanliness and low operating costs.*
>
> *"Where Petro systems are called for, we have found that their installation, supported by Petro engineering, offers certainty of a long-term and economical operation."*

Our data bulletins go into detail. Copies promptly mailed on request.

**PETRO**

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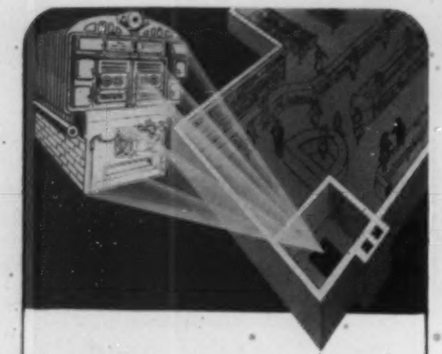
**cuts steam costs**

**PETROLEUM HEAT AND POWER CO.** · ***Makers of Good Oil Burning Equipment Since 1903*** · **Stamford, Connecticut**



**A boiler room can be a bargain basement!**

Chain stores can't take in money over counters that don't exist. Architects know that the smaller the boiler room, the greater the basement area that can be devoted to storing, displaying and *selling* merchandise. Heating contractors often show the way to smaller boiler rooms by specifying Smith-Mills boilers . . . because Smith-Mills boilers are constructed of cast iron, therefore do not need large open working spaces in front of the boiler for replacement of tubes.

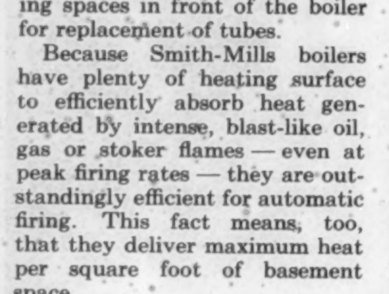
Because Smith-Mills boilers have plenty of heating surface to efficiently absorb heat generated by intense, blast-like oil, gas or stoker flames — even at peak firing rates — they are outstandingly efficient for automatic firing. This fact means, too, that they deliver maximum heat per square foot of basement space.

Yes, a boiler room can be a bargain basement . . . or a classroom, ward or tool room. In store or school, hospital or factory, Smith-Mills boilers are saving valuable space — and money, too. Write for the *facts*.

**H. B. Smith**

**CAST-IRON BOILERS**
**THE H. B. SMITH CO. INC.,**
**67 Main St., Westfield, Mass.**

*Offices and Representatives in Principal Cities*



(*Continued from page 190*)

ends of each section, permits a unit of any desired length to be made. An I-bolt attached to one end of the cable ties to the outside eyelet of one of the end sections. Blaw-Knox Co., Pittsburgh, Pa.

### TERMITE CONTROL

A new system of termite control has been developed which consists of installing a series of slotted pipes at the time of construction in all accessible areas such as porches, sun parlors, stoops, steps and fireplaces. A perforated pipe is inserted annually into these installed pipes through which all hidden areas are treated with a chemical toxic. Hill Termite Control Systems, Inc., Memphis, Tenn.

### REVISED STANDARD

*Old Growth Douglas Fir Standard Stock Doors* (*CS 73045*) is a revision which has been submitted to manufacturers and others for consideration and approval. It proposes to eliminate several sizes of house doors and a number of layouts of designs no longer in large demand. Will permit the use of Sitka spruce and Western hemlock as well as Douglas fir in the manufacture of doors as covered by the standard. In the lower quality doors, a mixture of these woods will be permissible. Mimeographed copies of the revision are available from the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

### AIR CONDITIONERS

#### Room Conditioner

A compact window-type room conditioner for homes and offices, the *SRA-50*, is entirely self-contained and does not require building alterations for installation. It fits any double-hung window from 29 to 52 in. in width, needs only a plug-in connection to operate.

Designed for installation in almost any household or office window, the unit provides cooling for rooms up to approximately 250 sq. ft. It is powered by a Meter-Miser refrigerating unit which is hermetically sealed and self-oiling. It circulates filtered air at the rate of 185 cu. ft. per minute, cooling, dehumifying and ventilating the room. Angled grilles direct air upward to prevent direct drafts. If desired, the cooling mechanism can be turned off and the unit will continue to ventilate the room. Room temperature control is provided by a three-position switch. Finish is bronze. Frigidaire Division, General Motors Corp., Dayton 1, Ohio.

(*Continued on page 194*)

THE NEW ADJUSTABLE
**RITE-LOCK**
FOR SLIDING DOORS

- For Entrance Doors, Bath and Inside Sets.
- Solid Brass Exterior.
- Three Escutcheon Types.

**Rite-lock** adds distinction and convenience to today's sliding doors. It's new, compact, trouble-proof...fits almost any thickness of door. The latching action is positive and releases with a natural sliding movement of the bar in the cup. For convenience and economy a finger pull is formed in the face plate. Look at these advantages:

★ *Adjustable in width from 1-1/8" to 1-15/16"*
★ *Unit-type requires only a 3-1/2" x 2-5/8" notch*
★ *Adaptable to right or left hand doors*
★ *Outer case measures only 4-1/2" x 2-7/8"*
★ *Pin-tumbler 3/4" diameter cylinder available*

Ask your Hardware Consultant
or write us for complete details.

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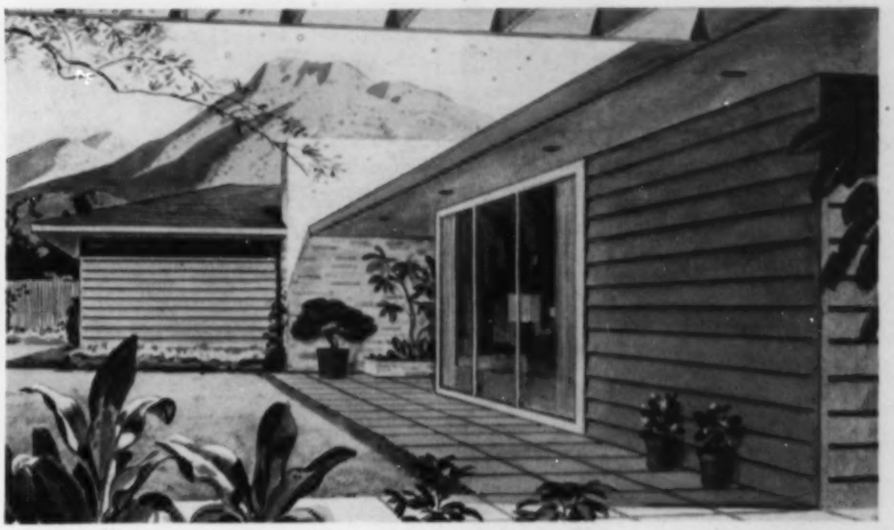
MANUFACTURING COMPANY
540 W. Chevy Chase Dr., Glendale 4, Calif.

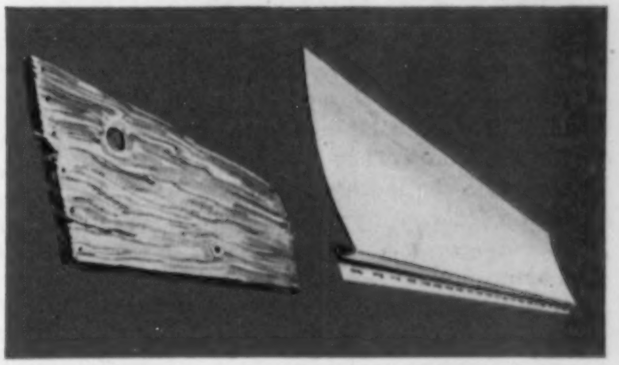
# You offer clients more with this new material!

(and at no extra cost)

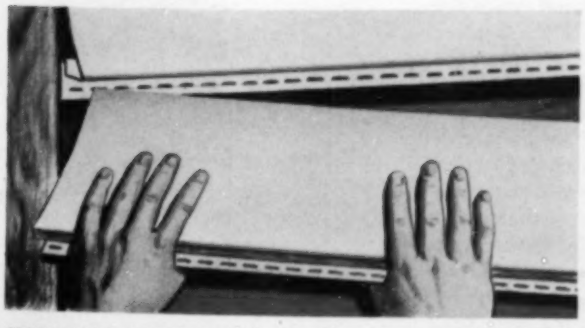


**MORE BEAUTY!** Here is a *better,* more beautiful kind of exterior building material—luxurious, precision-produced Kaiser Aluminum clapboard Siding and Roofing. It is flawlessly uniform in beauty and quality, forever free of splits, knots and rough sawing scars. It comes from the mill prime-coated, ready to receive smooth paint finishes that won't flake or peel. And it can be painted any color, any shade.

**MORE ECONOMY!** This new siding and roofing costs no more than other fine building materials. But better yet, it will never need the usual kind of maintenance, for it can't crack, rot, warp or rust. And it's easier to erect than any other material, so it cuts on-the-job labor expense. Requires fewer nails, less paint (because it absorbs none) and needs no underlying wood sheathing. You can cut and work it with wood tools.



**MORE DURABILITY!** No other material can match the long life of Kaiser Aluminum clapboard Siding and Roofing. It will last for *generations.* It can't absorb moisture, can't be damaged by vermin or rodents, can't be ignited by sparks. It is supplied in standard lengths of 10, 12, 14 and 16 feet. Siding is 6⅞" wide, .030" thick. Roofing has an exposed width of 8½", is .025" thick. 1143 base feet of the Siding weighs 580 pounds, will give 1000 sq. ft. of wall coverage.



**MORE PROTECTION!** Only Kaiser Aluminum clapboard Siding and Roofing has a curved surface. When each piece is nailed down by the lower edge, the pre-formed curve produces a tension which results in an absolutely tight, weatherproof joint. Concavity also eliminates wrinkles and sheen, produces attractive shadow lines that are ¾" deep, and increases rigidity. Notice how nails are completely hidden!

## Kaiser Aluminum

**SIDING AND ROOFING**

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Get more information about the unique advantages of Kaiser Aluminum clapboard Siding and Roofing! Phone, wire or write today for free folder packed with detailed information.

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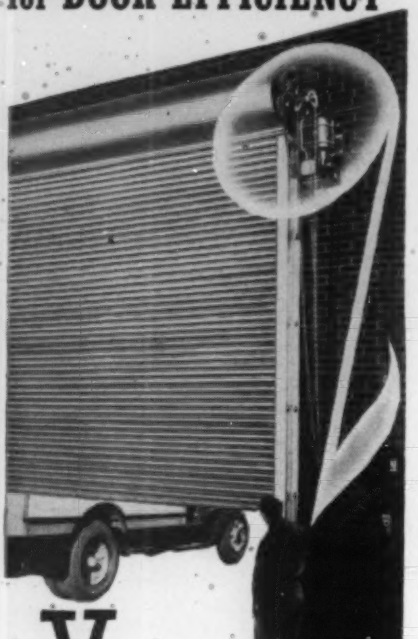
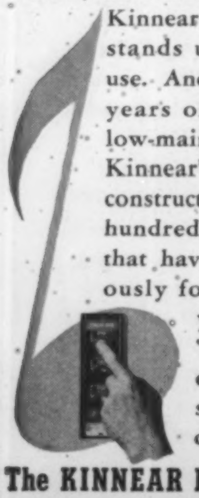
The
RIGHT NOTES
for DOOR EFFICIENCY



You keep *door performance* in tune with plant efficiency when you install KINNEAR Motor Operated Rolling Doors. They respond instantly to the touch of a control button, from one or more switches placed anywhere in your plant. Their smooth, efficient, *vertical* action saves space, prevents accidents, avoids traffic tie-ups. They coil compactly out of the way overhead, safe from damage. The husky Kinnear Motor Operator stands up under hardest use. And there are extra years of protection and low-maintenance service in Kinnear's rugged, all-steel construction—as proved by hundreds of installations that have served continuously for 20, 30 and 40 years! For the "right notes" on efficient doors, send for Kinnear details today.



**The KINNEAR Manufacturing Co.**
Factories: 1860-80 Fields Ave., Columbus 16, Ohio
1742 Yosemite Avenue, San Francisco 24, California
*Offices and Agents in Principal Cities*

*Saving Ways in Doorways*
KINNEAR
ROLLING DOORS

(*Continued from page 192*)

**Window Blower**

Specifically designed for small homes, apartments, tourist courts and cottages, the new *Sno-Breze Evaporative Air Cooler* features quiet operation and ease of installation. Motor and blower are free floating and rubber mounted to eliminate vibration and noise. The unit is balanced to the window sill, has metal side panels adjustable to fill any space between the cooler and the window; it is positioned and held by lowering the window to the angle weather stripping on top of the cooler. Cabinet is 22 gauge rust-resistant, press-formed, with rear louvered panel removable without tools for quick changing of the pads and for servicing.

Other features of the unit include: a trough type water distributing system with automatic water regulator; recessed adjustable front grille (patent pending); and convenient fingertip control provided by a switch and water control valve on the front panel. Finish is a light brown baked Hammertone enamel. Palmer Mfg. Corp., Phoenix, Ariz.

**Schoolroom Unit**

Gradual throttling of the steam supply for uniform temperature control is possible with a new unit ventilator designed for use in school classrooms. This is achieved by a newly designed assembly consisting of a floating heating element with steam distributing tubes, a pressure equalizing unit including a special checking device, and condensate cooling surface.

A slow speed, direct connected motor — located in the end compartment, out of the air stream — is said to provide quiet operation and to permit use of the entire cabinet space above the heating element for fans. Fans are located at the outlet of the unit to permit uniform temperature of air introduced into the room from each outlet; the number of the fans increases in direct proportion to rated capacity to permit the same slow tip speed regardless of the size of the unit. An automatic back draft damper is provided to prevent cold air from passing through the room air grille. The Herman Nelson Corp., Moline, Ill.

**Attic Fan**

A spring mounted, vertical air discharge attic ventilating fan, especially designed for attics or other locations of low headroom where extreme quiet is desired, is available in three sizes to deliver 6000, 8500 and 12,000 C.F.M. The

(*Continued on page 196*)

OIL
ALLOTMENTS
GO
FURTHER
WITH
TODD
BURNERS

★

- Stretch your oil supply by replacing obsolete equipment with Todd Burners. Avail yourself of the years of experience of Todd engineers.

*Oil Burners*
*Gas Burners*
*Combination Oil and Gas Burners*

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SEATTLE • MONTREAL • TORONTO
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## *Send Today For Your Free Copy of the Rules of the*

# Chicago Tribune's
# $26,250.00
# "BETTER ROOMS"
# COMPETITION of 1948

*offering 161 cash prizes ranging from $100.00 to $1,000.00 each for the best ideas for furnishing and decorating typical rooms of homes*

**ALL ENTRIES MUST BE RECEIVED BY 5 P. M. OF JUNE 7, 1948**

DO YOU have fresh and interesting ideas for furnishing and decorating a living room, a combination living-dining room, a dining room, bedrooms for single and double occupancy, a kitchen, or a one room home?

So that it may present again this year to readers the widest range of the latest, best and most effective ways to furnish and decorate various rooms of homes, the Chicago Tribune is conducting the "Better Rooms" competition of 1948, offering $26 250.00 in 161 cash awards ranging from $100.00 to $1,000.00 each for the best entries presenting ideas on this subject.

Just as the Chicago Tribune's competition last year was highly productive of ideas which set the pace in this field of popular interest, so the 1948 project has been designed to set new high standards of excellence in home interior fashions.

Here is an opportunity to give your talent and ability free play in planning one or more interiors just the way you would have them, without compromising in any detail. Here is a chance to win substantial monetary reward and national recognition for your efforts.

After the prize-winners have been selected, the Tribune plans to give them the widest publicity. It is the newspaper's intention to reproduce the winning ideas, or adaptations of them, week after week, in full color in the Sunday Tribune with its more than 1,600,000 circulation.

Everyone is eligible to compete, except Tribune employes, members of their families, and of the Jury of Awards, which will be composed of persons competent and skilled in this field.

For complete information about how to submit an entry, write today for a free copy of the rules which will be sent postpaid. As is made plain by the anonymity provision of the rules, all entries will enjoy equally fair consideration in the judging.

Fill in the coupon below, paste it on a postcard and mail today. All entries must be received not later than 5 p.m. of Monday, June 7, 1948.

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*Without cost or obligation to me, please send by postpaid mail complete details and rules of the Chicago Tribune's $26,250.00 "Better Rooms" Competition of 1948 to me at the address below.*

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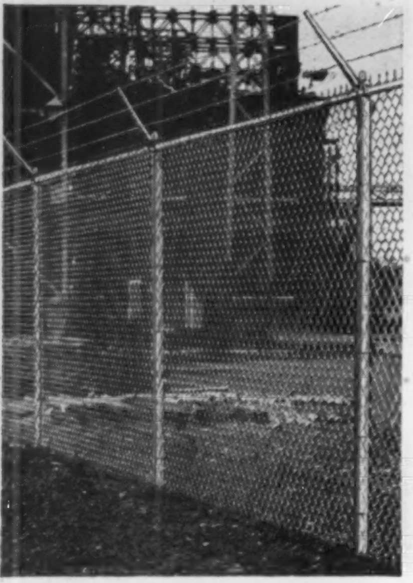

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Anchor Fence
Nation-wide Sales and Erecting Service

(*Continued from page 194*)

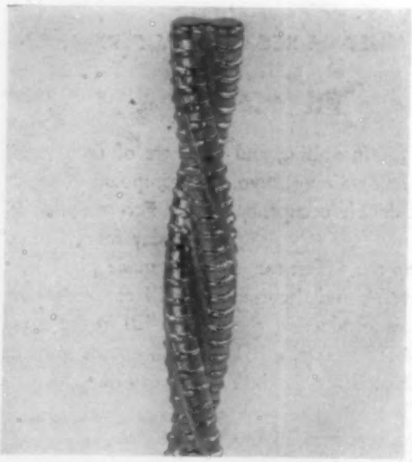
unit is sold ready for installation as a package unit consisting of vertical discharge fan and motor, automatic ceiling shutter, floor mounting brackets and springs, canvas boot for seal between fan and attic floor, pull chain switch with fuse link. Chelsea Fan & Blower Co., Inc., 1206 Grove St., Irvington, N. J.

### Portable Fan

The *Lau P-18 Portable Fan* has been redesigned for added efficiency, improved appearance and adaptability. It can be placed on a table, the floor, in a window or transom, or on its back to deliver a cooling stream of air. Connection is plug-in type, delivery is 1800 C.F.M. The position of the unit can be reversed at any time to enable air to be pulled in or out as desired. The Lau Blower Co., Dayton 7, Ohio.

### INSULATION

A double-action building insulation, *Cellulite-Silvercote*, reflects radiant heat in addition to blocking heat transfer by conduction and convection. Two non-corroding reflective metallic membranes enclose a fluffy fiber blanket of Cellulite which is flameproof and, with its millions of dead air spaces, an effective barrier to heat transfer. The Gilman Brothers Co., Gilman, Conn.



*Steel- and cost-saving reinforcing bar*

### REINFORCING BAR

A new form of reinforcing bar called *Webrib* is a deformed dumbbell shape, produced by cold spiral bending and twisting an intermediate grade bar so as to increase its yield point by 50 per cent. According to the manufacturers this raises the yield point of ordinary intermediate grade steel from a specified value of 40,000 p.s.i. to a minimum

(*Continued on page 198*)

IN-SINK-ERATOR
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With THESE OUTSTANDING FEATURES

- REVERSIBLE ACTING ROTOR SHREDDER

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Add to all these a distribution set-up that pleases the man who makes the installation—the plumber—and you've got a garbage grinder you will own with pride, specify with confidence.

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The fine workmanship in Fenestra Fireshield Swing Doors is evidenced in their trim appearance.

**MANY USES**—attractiveness and durability make these doors suitable for many uses—for entrances, exits, stairwells, communicating doors, etc.—for apartments, stores and other commercial buildings, factories, to mention a few.

**AVAILABLE NOW**—standardization of types and sizes enables your building supply dealer to carry ample stocks to fill almost any building need.

**LOW COST**—in two ways. (1) Lower first cost because standardization results in manufacturing economies. You get a sturdy metal door for far less than many doors now on the market. (2) Installation costs are reduced because swing doors come to the job complete with frames and hardware. No mortising, no drilling, no tapping, no prime painting. You're sure of a good fit.

**UNDERWRITERS' LABEL.** Doors of same design are available with Underwriters' B Label.

For full information on these doors, as well as on counterweighted doors, call the nearest Fenestra office, or write to Detroit Steel Products Co., Dept. AR-4, 2252 East Grand Blvd., Detroit 11, Michigan.

*Fenestra* FIRESHIELD SWING AND SLIDE METAL DOORS

(Continued from page 196)

value of 60,000 p.s.i., making available a considerable saving in the amount of steel required in reinforced concrete construction. Advantages claimed for Webrib are: (1) a one-third saving in weight of steel; and (2) considerable economy in cost through the saving in material, handling, transportation, bending and placing. Webrib Steel Corp., 120 Broadway, New York 5, N. Y.

### LONGER LIFE FOR LUMBER

Wider use of lower cost lumber is expected to be made possible by the use of Bakelite and Vinylite resins as a knot-sealer. The sealer, recommended by the Western Pine Association, is made by dissolving Vinylite vinyl butyral resin in alcohol and adding to this solution a Bakelite phenolic resin. In application the sealer is brushed over the unprimed knots and the surrounding area. Paint is then applied in the usual manner.

### WALL TILE

A new type of plastic wall tile, *Lockback*, is molded with four undercuts extending entirely across the back. These undercut ribs provide a mechanical lock between the mastic and the tile so that once Lockback has been pressed into place it is "on to stay." The ribs also are said to keep the mastic from drawing the tile concave when it dries, and to give the tile added strength and rigidity. Wilson Plastics, Inc., 131 Arthur St., Sandusky, Ohio.

### PIPE INSULATION

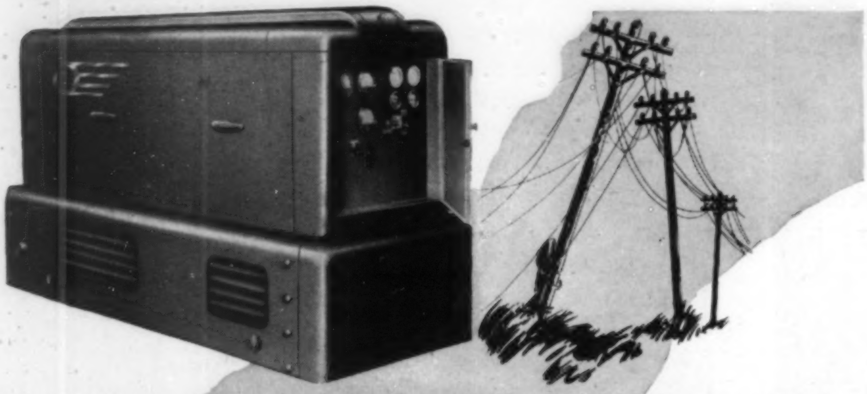
Said to be the first pipe insulation that can be used for both hot and cold lines, indoors and outdoors, a new *Foamglas* insulation is designed to retain its original insulating efficiency permanently. Of cellular glass construction, it is unaffected by humidity, is resistant to fumes, vapors, acid atmospheres, and many other elements which cause other materials to lose their insulating value. It is non-combustible.

The new insulation comes in two equal half-sections, 18 in. long, and is being manufactured for all sizes of pipe. Pittsburgh Corning Corp., Pittsburgh, Pa.

### VENTILATOR

A glass block ventilator, *Weather-Bloc*, conforms in size to standard glass block, and is easy to install. Built of stainless steel, reinforced and ribbed for added strength, it has two plate glass

(Continued on page 200)



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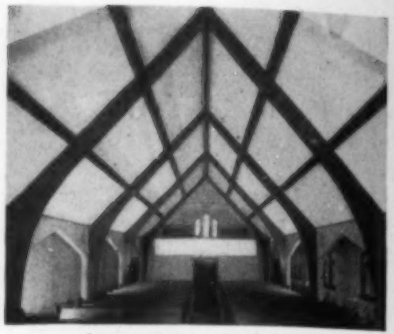

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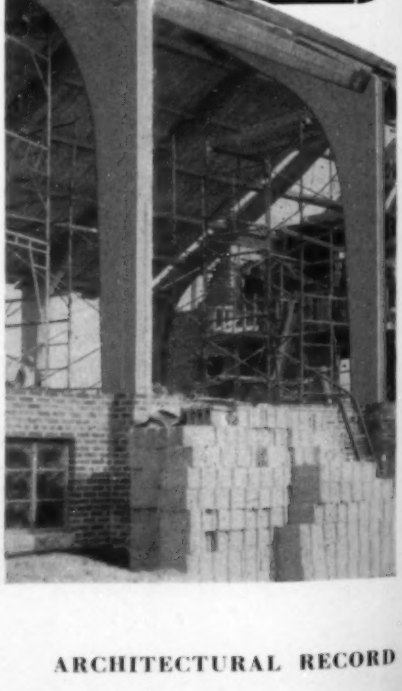

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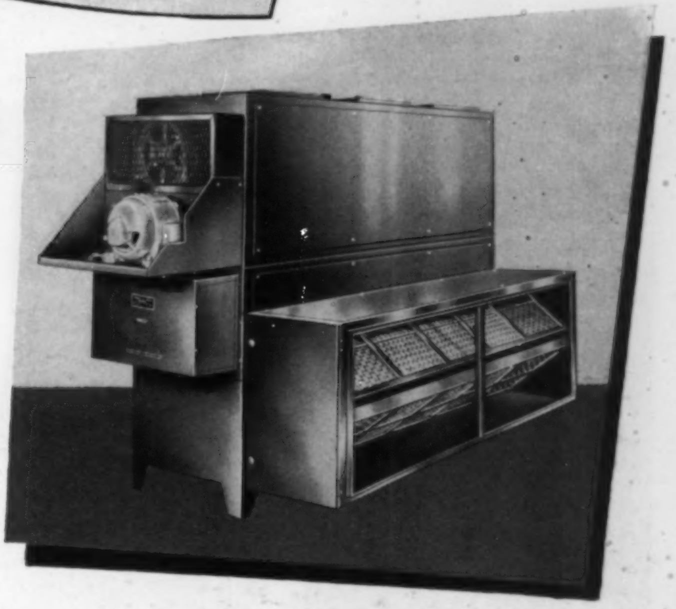
# CENTRAL PLANT
# AIR CONDITIONER



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This General Electric unit is planned and integrated *as a single unit*... with all components pre-engineered, pre-fabricated, pre-matched. "Jig-saw puzzle" assembly of uncoordinated parts is eliminated.

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*General Electric Company, Air Conditioning Department, Section **A8444**, Bloomfield, N. J.*

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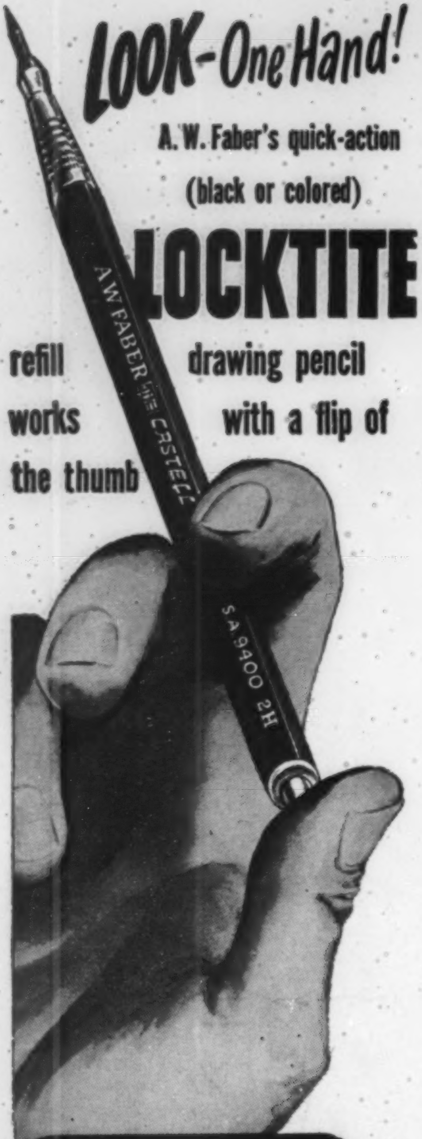

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(*Continued from page 198*)

louvers on the inside to permit regulation of the flow of air into the room and to direct it either upward or downward. Thick glass diffusers are fitted to the outer side of the unit to break up the air as it enters and thus prevent drafts; they face downward, deflecting rain, snow and dust particles. All parts are easily removable for cleaning and replacement, and the louvers themselves can be removed from the inside without disturbing the body of the ventilator. Air Rectifiers, Inc., 3734 Southport Ave., Chicago 13, Ill.

GOOD
POPULAR SCIENCE
Reader's Digest
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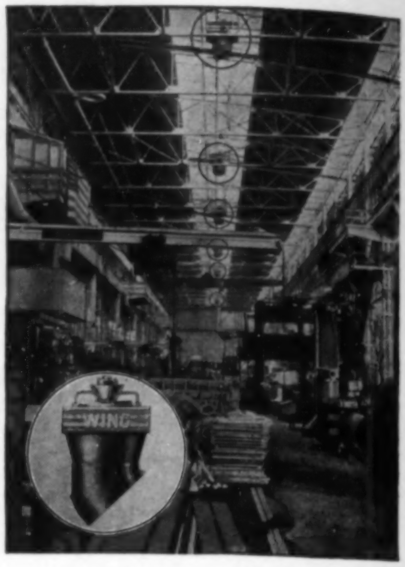
*Novel gadget for the hospitable home*

### COMFORT ITEM

From Hollywood comes a novel idea for home comfort: *Family Hospitality*, a bathroom accessory with compartments designed to hold books, magazines, newspapers, cigarettes, matches, ash tray, toilet tissue, etc. Made to recess in standard walls, it is of heavy gauge steel construction, with chrome plated frame and baked "Hammer Tone" enamel on interior surfaces. Available in six colors. A somewhat less hospitable model, *Family Hospitality Jr.*, omits the book and magazine section but is otherwise identical. House of Hospitality, P.O. Box 254, North Hollywood, Calif.

### CORRECTION

Through an unfortunate typographical error in the description of *Castle Square Flooring* in the February RECORD (page 168), the thickness of the flooring was given as 3⅜ in. The boards are ⅜ in. thick.



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The ideal heating system for hard-to-heat buildings is an installation of Wing Revolving Unit Heaters. The Wing Revolving Unit Heater is unique in that it does what no other heater can do — its slowly revolving outlets gently distribute the heat continuously in a constantly changing direction. It reaches over, around and under obstructions into far away corners, its moving streams of heated air spreading an even, uniform, healthfully invigorating blanket of warmth over the entire working area.

There is a Wing Revolving Unit Heater designed for almost any size, shape, height, or exposure of building. Wing Revolving Unit Heaters are used in many of the country's leading industrial plants. Write for a list of installations.

WING Revolving HEATER

Wing Revolving Unit Heaters keep the heated air moving, circulating around obstacles, seeking out far corners, spreading an even, uniform, healthfully invigorating blanket of warm air over the entire working area.

*Write for Bulletin HR-5*

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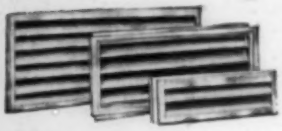

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That's why louver design demands the use of corrosion-resisting material.

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*Now look at Monel!* It's the natural answer to the problem. It resists corrosion without any "extra" protective coating. It provides twice the rigidity of commonly used materials and twice the strength.

Yet, you can use this superior metal and actually save up to 10% on material alone . . . because its strength and rigidity permit the use of *thinner* gauges.

Monel is easy to work, too. Sheets can be cut, bent and formed to exact specifications. Even 180° bends are no problem. And Monel can be soldered, brazed or welded by ordinary methods.

But the best way to see how Monel can solve your practical design problems is to examine a sample and try it out yourself. The coupon will bring it to you by return mail. *Reg. U. S. Pat. Off.

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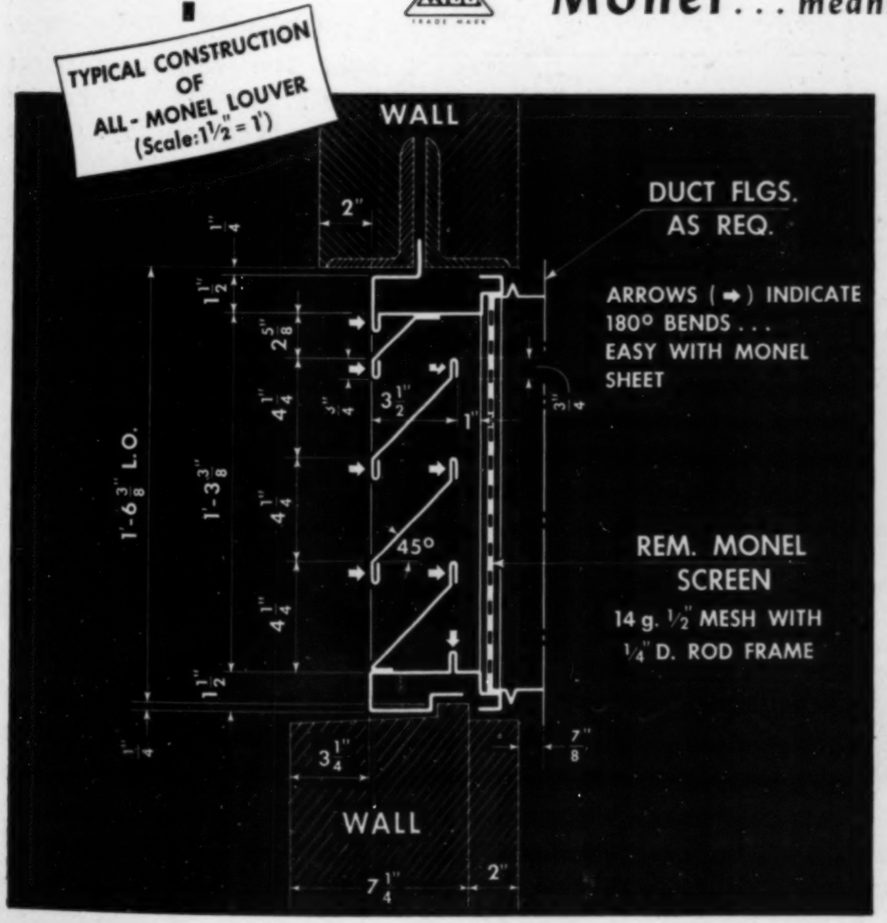

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